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DEPARTMENT OF HEALTH

PLANNING THE MEDICAL WORKFORCE

MEDICAL MANPOWER STANDING ADVISORY COMMITTEE: FIRST REPORT

DECEMBER 1992

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The Rt Hon Virginia Bottomley JP MP
Secretary of State for Health

Dear Secretary of State,

Your predecessor commissioned us to investigate the factors relevant to planning the medical workforce over the next 20 years and to report back with recommendations for the changes needed. In our terms of reference particular attention was focused on medical student numbers and on the need to take account of realistic resource assumptions.

Our central concern has been the need to provide a high standard of health care for all the people of the United Kingdom. We have therefore defined our main task as that of planning the medical workforce required for the best health service the country can afford. Inevitably we have concentrated on the needs of patients within the NHS, in which 90% of qualified doctors are employed - but we have not lost sight of the wider context.

Your Government has almost completed a radical overhaul of the way in which the NHS is organised and funded. We have taken account of these changes, in what is an already complex environment, in framing our recommendations.

We are conscious that we have been set up as a Standing Committee. This provides us with the opportunity to adopt an approach which is significantly different from that of our predecessors. We have been able to divide our work into separate parts:

* on those issues on which the evidence is clear and unambiguous, we make clear and definite recommendations which we hope you will see fit to put into operation.

* where the data and evidence are not so clear, but where the matters are important, we have attempted to define the issues and open them up for wider debate. We shall return to these issues following the conclusion of that debate.

- there are a number of areas in which there is a pronounced lack of information to enable either an informed judgement to be reached or a proper debate to take place; for those we have specified further research.

A further advantage of being a Standing Committee is that we are able to establish a continuing dialogue with the major interest groups involved and react to feedback in framing recommendations. We are particularly grateful to all those who provided evidence - written and oral - for this our first report.

Our work on projecting forward current data and trends has led us to three immediate conclusions:

(i) the precise levels of demand for medical staff in 10-20 years time will depend upon a wide range of factors, including the way in which the newly - modernised NHS balances competing priorities and the pace of medical innovation. More work and analysis is necessary before confident conclusions can be reached;

(ii) however we can already detect the signs of a short-term shortage of doctors. We are able to identify a number of areas in which action can be taken to avoid this shortfall by improving retention and increasing the effectiveness with which the existing medical school output is used. Hence we support changes in relation to:

- flexible working;
- length and intensity of postgraduate training.

and call for research into skill-mix changes to assess their effect on manpower needs. We are agreed that if changes can be made in these areas the effects of a potential short-term (5-10 year) shortfall might be substantially reduced.

(iii) For the longer term we have considered carefully the case made by the Medical Royal Colleges for a large increase in hospital consultant numbers, together with the views of NHS managers that an increase in the number of doctors is both necessary and affordable, at a lower level than that proposed by the Royal Colleges. On that basis there is likely to be a shortfall in the overall number of career grade doctors in the early part of the next century, particularly as year-on-year increases linked to the increases in medical school intake following the Todd Report will taper off by about the year 2015. We have also taken account of the implications if NHS resources continue to increase broadly in line with past trends.

We have felt able to recommend a modest increase in the medical school intake, to be accommodated within existing spare capacity, which will begin to contribute to continued career-grade expansion by the end of the first decade of the next century. We will continue to keep intake levels under review in the light of other developments, including the availability of resources. To enhance the contribution made by our Universities to the improvement of medical services worldwide, we also recommend a modest increase in the number of medical school places reserved for overseas students.

We also consider that the Health Departments need to develop more effective implementation, monitoring and information strategies both to ensure that our recommendations are implemented effectively and that we have access to the relevant and appropriate information and intelligence in the years ahead. We regard this as important.

I wish to thank each and every member of the Committee - each has contributed a great deal of time and expertise in preparing this report.

The whole Committee also wishes to record its thanks to the Secretariat who have served us in an exemplary way in this busy first year of our work.

I hope this report proves valuable and I look forward to receiving your response. In the meantime, we will continue with our work with a view to completing a further report next year.

Yours sincerely,

Colin Campbell

Colin Campbell
Chairman, Medical Manpower Standing Advisory Committee
December 1992

EXECUTIVE SUMMARY

In this, its first Report, the Medical Manpower Standing Advisory Committee examines a wide range of factors affecting the demand for medical manpower in the UK, in particular the Committee:

* highlights the changing environment in the NHS and developments within medicine and its practice;

* considers the key issues currently facing general practitioners;

* explores the case for an expansion of consultant numbers, and consider issues relevant to the training and education of junior doctors.

* identifies trends in early retirement, career flexibility and the participation of women in medicine.

The report summarises demand in the context of affordable growth based on past trends, assuming that over a twenty year timescale trends in availability of resources will remain broadly similar to those in past years. It goes on to consider how the supply of medical manpower might meet demand projections taking into account the following factors:

* increase to the capacity of medical schools;

* the balance of home and overseas medical students; and

* the availability of overseas doctors.

On comparing supply against demand the Committee identifies the likelihood of a shortfall of doctors over the next 10 to 20 years and recommends measures to alleviate that shortage:

* the extension and implementation of initiatives on flexible working and other measures to increase retention of trained doctors and increase the effectiveness of current training;

* an increase in medical school intake by **240** students, resulting in a revised target figure for the UK of **4470** places, including an increase in the number of places reserved for overseas students to around **340** or about **7.5** percent of the total number of students; and

* research to quantify the medical manpower effects of skill-mix initiatives, to examine the career patterns of doctors, (their reasons for leaving medicine and their future career intentions) and, to study the affordability of further medical manpower increases.

As a Standing Committee, MMSAC is able to indicate a wide range of issues to which it wishes to return in future reports. Additionally, the Committee invites a continued dialogue with the medical profession and the NHS.

CONTENTS

PAGE

PREFACE

EXECUTIVE SUMMARY

1 **INTRODUCTION** 1
- The Establishment of MMSAC 1
- Terms of Reference 1
- Membership 1

2 **MEDICAL MANPOWER PLANNING** 3
- Introduction 3
- Current Planning Mechanisms 4
- The Historical Context 4
- The Alternative to Planning 5
- Employment Outside the NHS 5
- The Impact of Change 6
- Method of Approach 7

3 **THE DELIVERY OF CARE** 10
- Introduction 10
- Changes in Medical Care 10
- Skill-Mix 12
- Effect of NHS Reforms 14
- New Legislation 15

4 **GENERAL PRACTICE** 17
- Introduction 17
- Choice of Career 17
- Demographic Effects 19
- List Sizes 20
- The Background of Change 21

5 **HOSPITAL CAREER GRADES** 24
- Introduction 24
- The Case for Consultant Expansion 24
- Moderating Factors 26
- Conclusions on Consultant Expansion 27
- Non-Consultant Hospital Career Grades 28
- Public Health Medicine 28

6 **HOSPITAL CAREER STRUCTURE** 30
- Introduction 30
- Specialist Medical Training and the EC Directives 31
- Pre-Registration House Officer 31
- Specialist Training 31
- Continuing Medical Education 33
- Summary 33

7 **JUNIOR DOCTORS' HOURS** 34
- Introduction 34
- The New Deal 34
- EC Directives 35
- Summary 35

PAGE

8 **FLEXIBLE WORKING PATTERNS** 37
- Introduction 37
- Women in Medicine 38
- Career Flexibility 39
- Early Retirement 42
- Transfers and Leavers from the NHS 42
- Summary 44

9 **SELF-SUFFICIENCY IN MEDICAL MANPOWER** 45
- Definitions 45
- Introduction 45
- Emigration of UK Doctors 45
- Supply of Overseas Doctors 46
- Supply of EC Doctors 48

10 **MEDICAL SCHOOL INTAKE** 49
- Introduction 49
- Role of the HEFCs 49
- Changes in Medical School Intake 49
- Medical School Capacity 51
- Entrants to Medical School 52
- Changes to the Medical School Curriculum 52
- Overseas Students 53

11 **RESOURCES** 55
- Introduction 55
- The Growth of Resources for the Health Service 56
- Identification of HCHS Costs 56
- Costs in the General Medical Services 59
- The Number of Doctors Which Has Been Afforded in the Past 61
- The Number of Doctors Which Might be Afforded in the Future 62
- Alternative Scenarios 66
- Costs of Education 67
- Uncertainty 68

12 **SUMMARY OF DEMAND PROJECTIONS** 69
- Introduction 69
- Demand Projections 69

13 **MODELLING THE FUTURE SUPPLY OF DOCTORS** 73
- The Future Supply of Doctors 73
- The Career Simulation Model 73
- Projections of Supply 74
- Comparison of Supply Projections and Demand Projections 75
- Conclusion 78

14 **RESEARCH AND INFORMATION STRATEGY** 79
- Introduction 79
- Information Requirements 79
- Suggested Research 80
- Recommendation 81

PAGE

15 CONCLUSIONS AND RECOMMENDATIONS 82
- Introduction 82
- Short Term Solutions 83
- Longer Term Solutions 83

APPENDICES

1 - MMSAC: Chairman and Members **85**
2 - List of Bodies Submitting Evidence to MMSAC **87**
3 - Glossary **89**
4 - Bibliography **91**
5 - The Medical Manpower Record and the Career Simulation Model **94**
6 - Detailed Modelling Information **96**
- Section 1 Summary of Supply Projections 97
- Section 2 Details of Supply Projections 99
- Section 3 Breakdown of Demand Projections 105
- Section 4 Grades Included in the Modelling Baseline 106

7 - Additional Tables **107**

FIGURES

2.1 - Doctors in NHS Employment: September 1990 (United Kingdom) 3
4.1 - Trainees in General Practice (United Kingdom) 18
4.2 - Unrestricted Principals in General Practice (United Kingdom) 19
4.3 - Average General Practitioner List Sizes 21
8.1 - Proportion of Female Students in Medical School Intake (United Kingdom) 37
8.2 - Proportion of Female Doctors in Hospital Training Grades (Great Britain) 38
10.1 - Medical School Intake (United Kingdom) 50
10.2 - Relative Change in Doctor Numbers and Medical School Output (Great Britain) 51
10.3 - Overseas Students as a Percentage of Medical School Intake (United Kingdom) 53
11.1 - Relative Growths of GDP and NHS Expenditure 56
11.2 - HCHS Expenditure Per Doctor (England) 58
11.3 - Relative Growths of GDP and FHS Expenditure 59
11.4 - Components of GMS Expenditure Per Doctor (Great Britain) 60
11.5 - Relative Growth of HCHS Expenditure and Numbers of Doctors (England) 62
11.6 - HCHS Expenditure Per Doctor - Actual and Projected (England) 63
11.7 - Projections of List Size (Great Britain) 64
11.8 - Projections of Unit Costs in the General Medical Services (Great Britain) 65
13.1 - Central Supply Projection vs Alternative Demand Assumptions 76

TABLES

PAGE

4.1 - Demographic Information 1991 and 2011 (United Kingdom) 20
8.1 - Medical Participation Rates (Great Britain) 41
12.1 - Zero HCHS Growth Projection: Total Numbers of Doctors (United Kingdom) 71
12.2 - Lower HCHS Growth Projection: Total Numbers of Doctors (United Kingdom) 71
12.3 - Continued HCHS Growth Projection: Total Numbers of Doctors (United Kingdom) 71
12.4 - Higher HCHS Growth Projection: Total Numbers of Doctors (United Kingdom) 71

Tables in Appendix 6

6A-6F - Summary of Supply Projections 99
6G-6L - Details of Supply Projections 101
6M-6P - Breakdown of Demand Projections 108

Tables in Appendix 7

7A - Doctors Working in the NHS or Universities in 1990 (United Kingdom) 107
7B - Unrestricted Principals, Assistants and Trainees in General Practice (United Kingdom) 108
7C - General Practice List Sizes 109
7D - Medical School Intake (United Kingdom) 110
7E - Applications for Medical School Places (United Kingdom) 111
7F - Effects of Changes to the Balance of Home and Overseas Students (United Kingdom) 112

1 INTRODUCTION

THE ESTABLISHMENT OF MMSAC

1.1 In July 1991 the Secretary of State for Health announced the establishment of a new Medical Manpower Standing Advisory Committee (MMSAC) to advise on medical school entry taking into account future demand for and supply of medical manpower. Establishment of this committee followed recommendations in the most recent medical manpower study that the balance between demand and supply should be kept under regular review.[1]

TERMS OF REFERENCE

1.2 MMSAC was given the following terms of reference:

> **to advise the Secretary of State for Health on future developments in the balance of medical manpower supply and demand in the United Kingdom, taking account of resource assumptions and other guidance which the Secretary of State, in consultation with other Health Ministers, may give to the Standing Advisory Committee; and**
>
> **to make recommendations about the medical school intake, including the balance between home and overseas students, and the timing of any changes, taking into account the resources available within the Universities Funding Council's aggregate funding and from overseas students' fees as well as the facilities for clinical students.**

MEMBERSHIP

1.3 Previous committees on medical manpower included nominees representing specific professional interest groups and were established for a defined, limited period in order to complete and present a single ad hoc report.

1.4 We were not appointed as a representative committee and come together from a mixed background. We have experience in medical, academic, statistical and economic fields. In particular several of our members have considerable expertise in manpower planning.[2]

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[1] Department of Health. Report of the Second Advisory Committee for Medical Manpower Planning (ACMMPII). 1989.

[2] A full list of members is at Appendix 1.

1.5 As a Standing Committee, we are able to examine medical manpower issues over a period of time and draw upon expertise both from within our membership and from outside. We deal with some topics in detail in this report; some areas are highlighted as worthy of further research; and we comment on other issues to initiate debate in a wider forum.

1.6 We are assisted in our consideration of medical manpower issues for the United Kingdom by Observers from the Scottish Office, Welsh Office and Northern Ireland Office who provide us with their perspective wherever appropriate.

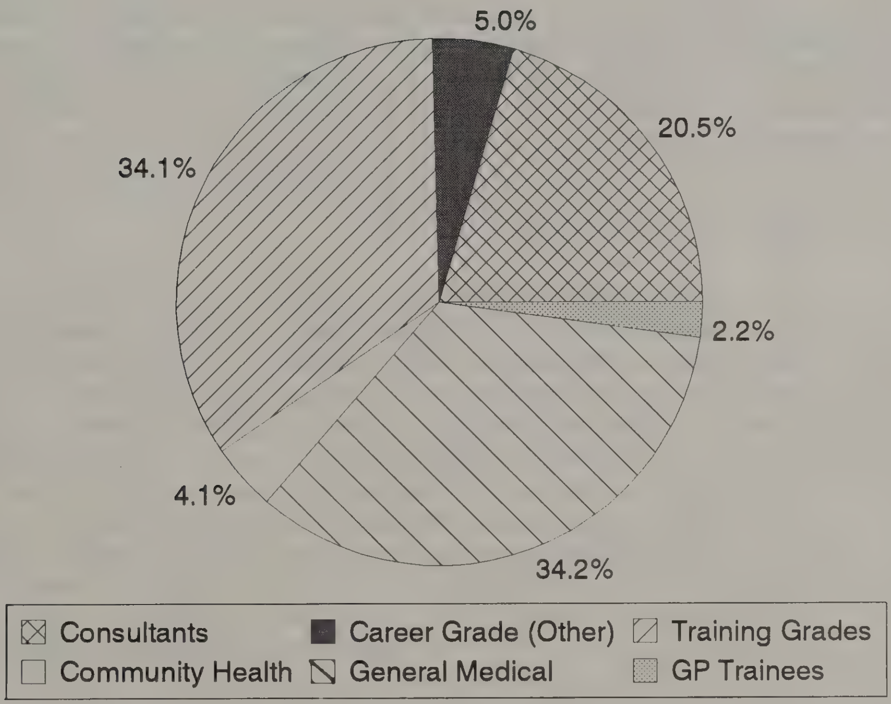
1.7 The Secretariat is provided by the NHS Management Executive's Health Care Directorate, Medical Manpower Division, with support from other divisions of the Department of Health and the Department for Education. We wish to thank the Secretariat for their assistance in the preparation of this report. They have been unfailingly helpful, have responded to all our requests for data and analysis and have offered advice as appropriate. We are grateful to them.

2 MEDICAL MANPOWER PLANNING

INTRODUCTION

2.1 In the United Kingdom, every year almost 4000 doctors qualify from medical school and the total number of doctors still in active service is estimated to be around 105,000. The National Health Service and Universities employ over ninety percent of these doctors. The total number of doctors working in the NHS at 30 September 1990 was 96,400 distributed between Hospitals, General Practice and Community Health Services. The breakdown by grade and sector is shown in figure 2.1 and table 7A at appendix 7. By September 1991 the total had risen to about 99,000 doctors.

FIGURE 2.1 DOCTORS IN NHS EMPLOYMENT: SEPTEMBER 1990 (United Kingdom)



Source: Health Departments 1992

2.2 The remaining ten percent of doctors are mainly employed in private practice, the armed services, in industry (particularly in pharmaceutical companies), and the medical civil service.

CURRENT PLANNING MECHANISMS

2.3 The aim of medical manpower planning is to balance the demand for medical manpower against the available supply. An oversupply of doctors might generate medical unemployment and would be an inefficient investment of resources; whereas an undersupply would have adverse consequences for the delivery of health care.

2.4 In order to achieve this balance the number of students entering medical schools in the United Kingdom each year is limited. Since 1970 this limit has been set at 4,080 for Great Britain, (corresponding to 4,230 for the United Kingdom). Within this total there is a quota for overseas students, which is currently set at five percent of the total intake.

2.5 In addition, a ceiling is set on Senior House Officer appointments[1], and quotas for Career Registrar and Senior Registrar numbers are discussed with the medical profession[2]. There are also controls on the immigration of overseas doctors.

THE HISTORICAL CONTEXT

2.6 For the past 40 years, successive Governments have sought to determine the appropriate level of medical school intake in order to match the supply of trained doctors to the predicted demand for their services. A short historical survey of earlier medical manpower planning is contained in the Health Department's 1978 Green Paper[3].

2.7 Following the recommendations of the final report of the Royal Commission chaired by Lord Todd (1968)[4] the target number of medical school students was increased (from an actual figure of a little over 2,500 in Great

---

[1] Hospital Medical Staffing - Achieving a Balance. Plan for Action. 1987. There is no ceiling on the SHO establishment in Scotland.

[2] Joint Planning Advisory Committee (JPAC) {England and Wales}
Advisory Committee on Medical Establishments (ACME) {Scotland}.
Hospital Services Sub-Committee {Northern Ireland}.

[3] DHSS, Medical Manpower: the Next Twenty Years. 1978.

[4] Royal Commission on Medical Education 1965-68: Report. 1968.

Britain in 1968) to the current GB target of 4,080 referred to in paragraph 2.4 above.

2.8 New medical schools were founded in Leicester, Nottingham and Southampton, and the capacity of some existing schools increased to facilitate the growth in student intake.

2.9 During the 1970s and early 1980s medical manpower and education continued to be kept under review on an ad hoc basis, by a series of committees producing reports most notably: the Short Report[5]; and the report of the first Advisory Committee for Medical Manpower Planning (ACCMPI)[6]. Although there was concern in the early 1980s about the possibility of future oversupply of doctors, the target was not adjusted and medical school intake continued to rise steadily. It reached 4,311 for the UK in 1991 against a target of 4320 (see figure 10.1).

2.10 The most recent review was undertaken in 1986-88 by the Second Advisory Committee on Medical Manpower Planning (ACMMPII) whose report was published in 1989. That Committee based its conclusions on a range of detailed modelling assumptions related to supply and demand. Its central projection suggested that a shortfall of doctors would occur by the year 2005. Owing to the uncertainties in the projection and recognising the changing environment it concluded that no immediate measures were needed to alter medical student numbers but recommended that the position be kept under regular review.

THE ALTERNATIVE TO PLANNING

2.11 An alternative to the current controlled approach would be to leave medical manpower to the influence of market forces. This view was represented in some of the evidence put to us. We do not think that would be right, in view of the long timescale before changes in medical student numbers can be translated into fully trained doctors and the high cost of this training.

EMPLOYMENT OUTSIDE THE NHS

2.12 The remit of this Committee is to advise on future developments in the balance of medical manpower within the UK. This must include advice on medical manpower outside the NHS. We have concentrated in this report on the manpower situation within the NHS. There are three principal reasons for this approach:

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[5] House of Commons Fourth Report from the Social Services Committee, Session 1980-81: Medical Education. 1981.

[6] DHSS. Report of the Advisory Committee for Medical Manpower Planning. 1985.

2.12.1 The NHS is where the overwhelming majority of health care is carried out and the NHS employs the substantial part of the medical workforce (indeed consultants practising private medicine do so usually in addition to their NHS contracts).

2.12.2 There is a lack of reliable information both on unemployed doctors and those employed outside the NHS.

2.12.3 Opportunities to exert any control on employment patterns outside the NHS are limited.

THE IMPACT OF CHANGE

The NHS Reforms

2.13 In the five years since the ACMMPII review, the NHS has undergone fundamental changes in its organisation and management. The reforms initiated in the late 1980s have changed the structure of the NHS by creating a split between the "purchasers" and "providers" of care. The needs of the local population for health care are now identified by health authorities and fund-holding GPs who in turn determine priorities and deploy NHS funds to purchase the required services. The way in which services are delivered is determined by providers.

2.14 The future demand for medical and non-medical manpower, and its deployment between different areas of health care, will be determined by the interaction of purchasers and providers. At this stage we are not in a position to predict how the operation of the market will alter past trends in medical manpower. For that reason we have adopted an incremental approach based on historic trends, and have proposed commissioning further research into key areas.

2.15 Our approach is based on the adoption of realistic resource assumptions for future NHS funding. Within the overall limit of what is likely to be affordable, we consider factors such as: the impact of demographic change; the implications of changing health needs; demands on consultant time resulting from the NHS reforms; changes in medical practice arising from developments in science and technology; recruitment of doctors from the European Community as well as from traditional overseas sources; and the scope for increased working flexibility both within the medical profession and between doctors and other health care professionals.

The Health of the Nation

2.16 Recent White Papers[7] have set out a strategy to improve the health of people living in the United Kingdom. They highlighted the key priorities for action and set national targets for achievement. High quality health services - particularly improved public awareness and disease prevention - are at the heart of this strategy. Doctors, together with other health care professionals, have a key role in securing these improvements.

METHOD OF APPROACH

Obtaining Evidence

2.17 To gather evidence on the issues noted above, we invited written submissions of evidence from a wide range of interested bodies. We did not wish to be prescriptive about the evidence and asked for views on all aspects of medical manpower within our terms of reference. We received evidence from fifty eight organisations representing the medical profession, academic and research bodies, National Health Service interests and other health care professions.[8]

2.18 Following consideration of the written evidence, twelve organisations were invited to present their evidence orally and to discuss it with the Committee. These discussions provided us with a valuable opportunity to seek clarification of the evidence and obtain views on current issues across a wide range of opinion.

2.19 We would like to take this opportunity to thank all those organisations who gave evidence, for their assistance and co-operation.

Resources

2.20 Our terms of reference specifically require us to have regard to resource assumptions provided by the Secretary of State. We have therefore looked at "need" and "demand" in the context of affordability:

> "need" in terms of health care could be boundless. In the context of this report we take it to be "that level of health care considered appropriate by clinicians";

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[7] Strategic Intent and Direction for the NHS in Wales. 1990.
The Health of the Nation - A Strategy for Health in England. 1992.
Scotland's Health - A Challenge to us all. 1992.
A Regional Strategy for Northern Ireland 1992-1997. 1992.

[8] A complete list is at Appendix 2.

> we define "demand" as those needs which the NHS is likely to seek to meet within certain resource assumptions.

The resource assumptions informing our projection of demand are set out in chapter 11.

Modelling

2.21 All recent studies on medical manpower planning have approached the subject by making assumptions in order to forecast both the expected supply of medical manpower and the likely demand for doctors over a forward period of twenty years. The relationship between forecasts can then be examined using statistical modelling techniques to decide what action, if any, should be taken to match supply to demand.

2.22 We have adopted this general approach and the modelling process is detailed in chapter 13 and appendices 5 and 6. However, we first seek to bring the key issues behind the supply and demand assumptions into focus and consider them in detail in chapters 3 to 10. Demand projections are summarised in chapter 12. We of course recognise that there are other factors which can influence supply and demand and we will be examining them in future reports.

Research

2.23 In the course of looking at these issues we have encountered a variety of research studies dealing with different aspects of manpower planning. We have also identified areas where further information or research is necessary. It would not be prudent to make recommendations on issues where there is a deficiency in the information available. This is discussed in more detail in Chapter 14.

Treatment of Issues

2.24 Our brief is to consider future supply and demand in relation to **doctors**. We have not attempted to make detailed forecasts in respect of the manpower needs of individual **specialties** over the twenty year period. We have however taken note of evidence of issues influencing or likely to influence specialties and have referred to some examples in the report where they serve to illustrate a particular point.

2.25 As a Standing Committee we have the opportunity to readdress these and other issues over a period of time. In this, our first report, we have adopted a three part approach to the issues which we have considered.

2.25.1 Where it appears to us that there is sufficient evidence to take immediate action, we make specific recommendations.

2.25.2 Some issues are considered appropriate for further discussion in a wider forum; either because they fall partly or wholly outside our terms of reference, but their outcome will have medical manpower planning implications; or because the issue warrants wider debate.

2.25.3 Our examination of some areas has revealed gaps in knowledge or information, (particularly in areas subject to recent change or innovation), and these are highlighted as worthy of further research.

2.26 Chapter 15 summarises our consideration of the issues, notes our conclusions and, where appropriate, our recommendations for action.

3 THE DELIVERY OF CARE

INTRODUCTION

3.1 Care in the NHS is not provided exclusively by doctors. It depends on the contributions of all health care professionals, the availability of technology and an efficient infra-structure in which to work.

3.2 In the early nineties, health care has undergone a period of unprecedented change, with the introduction of "purchasers" and "providers" in the NHS; and continuing changes in patterns of medical care and the application of new technology. This chapter considers the main trends which are currently emerging with implications for future needs for medical manpower. In doing so we have borne in mind the uncertainty over precisely how the new NHS market will allocate resources between different areas.

CHANGES IN MEDICAL CARE

3.3 We have received evidence emphasising the potential impact on medical manpower of changes in medical practice. Examples quoted included new developments in day surgery, shorter hospital stays, new drugs, new operative techniques, more complex technologies for treatment, and greater complexity of medical investigation. However, no attempt had been made within the evidence to quantify these factors in manpower terms.

Patterns of Disease

3.4 Demographic trends can be predicted; therefore the demand for treatment of disorders which are prevalent in the elderly can also be predicted. An example of this is an increased numbers of joint replacements which will increase the need for orthopaedic surgeons. We consider the impact of demographic change in the demand for GPs and hospital doctors later.

3.5 Changing patterns of disease are more difficult to predict. The experience of AIDS has clearly shown increased demand for medical manpower in diverse specialties within a very short time.

3.6 Conversely a 'cure' for a particular disease might reduce dramatically the need for doctors in a particular specialty. In practice, there have been few examples, an exception being a surplus of chest physicians following the introduction of effective treatment for tuberculosis in the 1950s.

3.7 We do not attempt to predict in detail any developments in medical care in this first report. There are three main reasons for this:-

3.7.1 We feel that determining the detailed need for manpower within individual specialties and the geographical variations in the prevalence of disease across the UK are outside the remit of this Committee. The distribution of manpower to this degree of detail should be a matter of local planning. Purchasers will take account of local demands when negotiating contracts and the role of consultants in public health medicine will be fundamental in informing purchasing needs (see paragraph 3.24). Provider Units (NHS Trusts and the District Health Authority managed Directly Managed Units) plan in response to the requirements for service delivery set out in the contracts.

3.7.2 Historically, the medical demand in response to changing patterns of disease has been difficult to assess and any research to measure demand for manpower risks being superseded by further change.

3.7.3 We are a Standing Committee and can, if necessary, revisit this area in a later report.

Medical Technology

3.8 Medical technology has tended to be labour intensive. Unlike industrial technology, it has not usually led to the substitution of capital for labour (thus reducing costs) but has tended to result in an increase in the level or quality of service provided[1]. Much of new medical technology opens up the prospect of treating conditions that previously had to be left untreated and so increases the perceived need for medical activity. We consider that future resource constraints may well lead to pressure to justify innovation in terms of increased value for money.

3.9 There may, however, be a case for medical technology saving time for certain other health care professionals. An example of this in surgery is the trend towards day surgery and "keyhole surgery", which, while still **medically** intensive is reducing the need for the "hotel services" and nursing workforce components of hospital care by shortening length of stay in hospital and patient recovery time respectively. This trend has implications for care in the community. Some patients who are discharged earlier will require a higher level of support from their community nurse and General Practitioner.

---

[1] Field MG. Success and Crises in National Health Systems. 1989.

SKILL-MIX

3.10 Skill-mix is a means of describing the way the various professions responsible for health care interact in its delivery. While each has a clearly defined role, there are interfaces of co-operation between the professional health care groups involved. We are confining our considerations, in this first report, to skill-mix at the interface between medicine and other health care professions. However, we do recognise that there may be scope, for example, for labour savings between radiographers and nurses, freeing up time in either group for the substitution of medical tasks.

3.11 We have identified three distinct areas of skill-mix.

> **3.11.1** Studies by Dowie[2] have examined patterns of medical staffing pertaining to the delivery of care. She has identified areas for improvements to working patterns across the medical career structure. We have found no specific examples of the redistribution of work across the medical grades but the movement towards a consultant based service (as distinct from a consultant led service)[3] can be seen as a general trend towards a changing skill-mix within medicine. In addition, Dowie has identified scope for efficiency savings, resulting from better cross-specialty co-operation.
>
> **3.11.2** Inappropriate tasks are currently being performed, particularly, by junior doctors, which could better be undertaken by other suitably qualified professionals or appropriately trained health care workers. Examples include, junior doctors' clerical work[4], venesection, administration of intravenous drugs, and antenatal care. We consider that initiatives of this type would use resources more effectively, improve services, and give junior doctors more time for training. However, junior doctors will need to continue to be involved in those tasks which are essential for the development of their clinical skills.
>
> **3.11.3** Areas where non-medical health care professionals enhance care by their contribution. For example: specialist nurses and chiropodists in diabetic clinics; physiotherapists in rheumatology clinics; and in general practice, with the increasing

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[2] Dowie R. Patterns of Hospital Medical Staffing. 1991.

[3] The background to this change is developed further at paragraph 5.2.

[4] A pilot scheme for medical support workers exists at the Northern General Hospital NHS Trust, Sheffield.

involvement of practice nurses and the advent of nurse practitioners[5].

3.12 There is a lack of research to quantify the effect of changes in skill-mix on manpower numbers. If work is undertaken by non-medical personnel there is no evidence available to evaluate the extent to which such changes can be provided within current resources, or whether extra staff are needed, for example additional clerks, phlebotomists or nurses.

3.13 Marked changes in skill-mix have already taken place in general practice. Practice nurses and attached community nursing staff (District Nurses and Health Visitors) are increasingly involved in health promotion, screening activity and the provision of clinical services, thus contributing directly to the output of the practice. In addition, in some areas nurse practitioners (NP) are extending the role of the nurse to include some diagnostic and treatment work within agreed protocols. Such activities may have an impact on GPs' workload.

3.14 The role of the Nurse Practitioner should be seen within the context of the primary health care team. Evaluation of various projects is currently taking place, in terms of cost effectiveness, clinical outcome and patient satisfaction, and we await the results of such surveys.

3.15 Evidence from studies in the United States provides no helpful conclusions on the likely impact of skill-mix on manpower in the UK.

3.16 We realise that any significant changes in skill-mix will depend on the willingness and availability of sufficient numbers of staff in the other health care professions. Future demographic trends indicate a relative shrinking of the under 25 population from which these professions are traditionally recruited. The capacity of other health care professions to attract both young and older staff, in an increasingly competitive job market, will be a major determinant in the level of change to the skill-mix.[6]

3.17 Recent changes to skill-mix probably represent a realignment of roles as a result of external pressures, for example junior doctors hours and the NHS reforms. However, they may mark the beginning of more wholesale change resulting from the contracting process and awareness, especially amongst fundholders, both of the need to respond to patients' needs and the importance of developing and making best use of the skills of all health care professionals.

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[5] From October 1993, District Nurses and Health Visitors who have undergone additional training will be permitted to prescribe from the nurses' formulary.

[6] Wilson R, Stilwell J. The National Health Service and the Labour Market. 1992.

3.18 We believe that it is important to pursue such initiatives and intend to quantify their impact on medical manpower. We return to this topic in Chapter 14 of this report.

EFFECT OF NHS REFORMS

3.19 Working for Patients[7] outlined the introduction of an internal market within the NHS:

> **3.19.1** NHS Trusts are developing as the model for providers of health care and the main employers of hospital medical staff. In April 1991 around 15% of NHS staff in England were employed in Trusts. This figure rose to over 30% by June 1992 and continues to rise.
>
> **3.19.2** Health Authorities (HA), Family Health Services Authorities (FHSA)[8] and GP fundholders are responsible for purchasing health care. It is the power of the purchasers which will drive future changes.

3.20 So far, we have found no evidence of the decisions taken by purchaser bodies having a direct impact on medical manpower numbers. However, purchasers are in a position to influence the manpower situation at a local level by placing contracts for services on behalf of their client population. Increasingly, purchasers will control the manpower agenda by deciding which services are bought. The way individual NHS Trusts react to this change will affect manpower requirements at a local level and we expect it to have a knock-on effect on overall national workforce requirements.

3.21 The implications of the introduction of NHS Trusts for medical manpower planning have yet to emerge. Trusts will each need to determine their specific needs for manpower which could influence larger scale planning in the medium term, although higher specialist training posts will

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[7] Department of Health. Working for Patients: the Health Service Caring for the 1990s. 1989.

[8] In Scotland the primary care division of each Health Board undertakes the function of the FHSA in England.

4 GENERAL PRACTICE

INTRODUCTION

4.1 There are currently 33,000 doctors working in general practice in the UK[1]. The ratio between principals in general practice and hospital consultants is approximately 3:2. The effect of this gearing is that a workload increase which is relatively small in manpower terms when applied to a GP or group of GPs, may have a major impact on overall numbers, calculated on a national basis.

4.2 Previous reports have tended to concentrate on the hospital service at the expense of general practice. We have attempted to give appropriate weight to the manpower needs of general practice.

CHOICE OF CAREER

4.3 One of the crucial aspects of manpower planning is the balance between hospital medicine and general practice. It is important to consider not only the relative demand for medical manpower but also the likely results of career choice decisions in each sector.

4.4 Doctors can leave the hospital career structure to become GPs either by making a positive career choice, at SHO level; or as a result of reaching a career impasse, at SHO, registrar or senior registrar level.

4.5 As can be seen from figure 4.1, the early 1980s showed increasing numbers of doctors entering general practice. This was due to the improvements in the status of general practice, making it increasingly attractive to junior doctors as an alternative career path. Recent years have seen a regular supply of doctors choosing general practice as a career.

4.6 We have considered whether the attractiveness of general practice as a career choice will continue. The Royal College of General Practitioners (RCGP) and other bodies have been concerned with recent figures which they suggest indicate a reduction in preference for general practice as a career, as indicated by a decrease in numbers seeking to undertake vocational training. However, there is as yet no firm evidence of such a trend.

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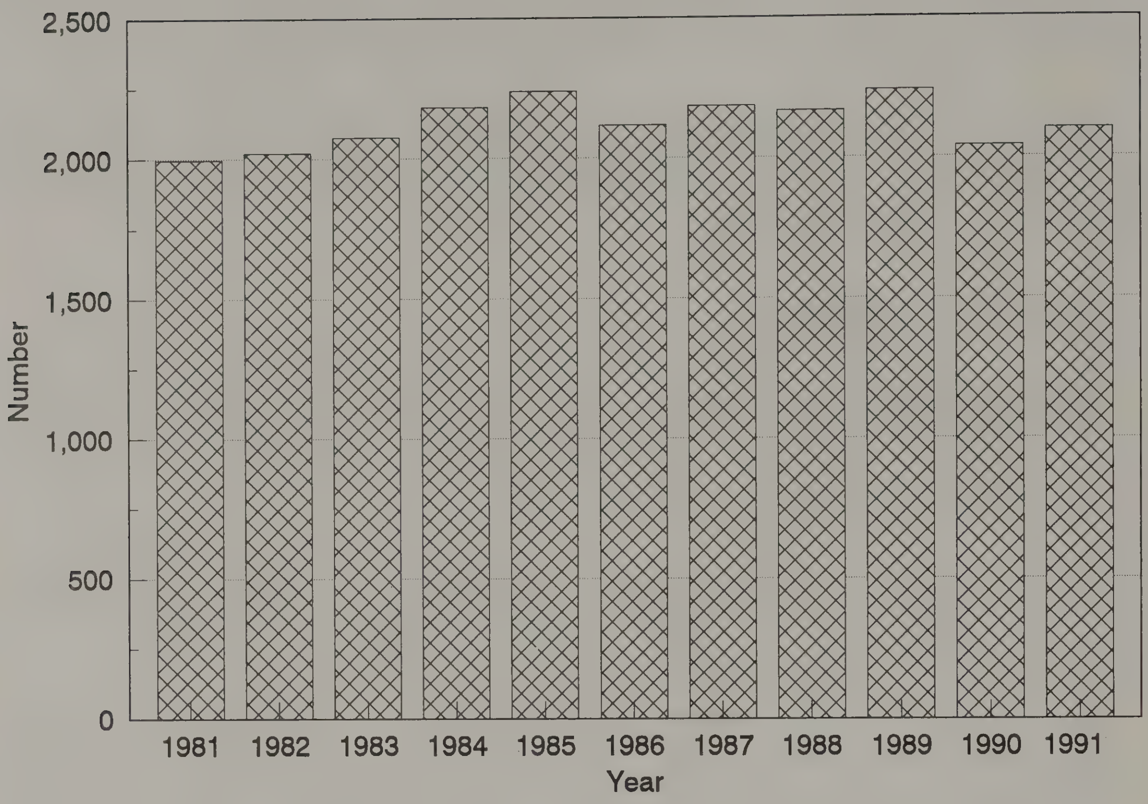
[1] A detailed table of all UK doctors is given at appendix 7, table 7A.

FIGURE 4.1 TRAINEES IN GENERAL PRACTICE (United Kingdom)[2]



Source: Health Departments 1992

4.7 A larger proportion of women graduates go into general practice than into career posts in hospital medicine or public health. Their numbers have nearly doubled in 12 years to 7,895 unrestricted general practitioners in the United Kingdom (see figure 4.2), so that there is now one woman to every three male practitioners. Their career span and participation level will be increasingly significant in the future manpower structure of general practice.

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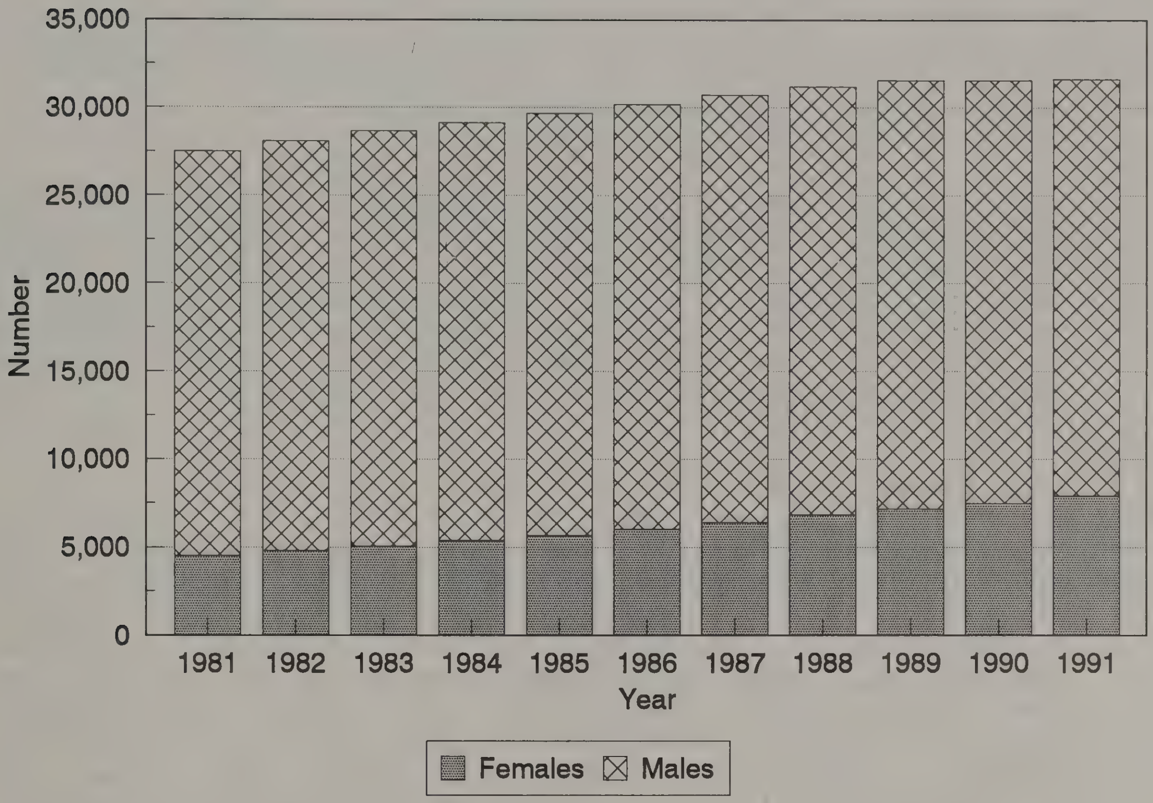
[2] A table summarising all doctors working in the General Medical Services is given at appendix 7, table 7B.

FIGURE 4.2 UNRESTRICTED PRINCIPALS IN GENERAL PRACTICE (United Kingdom)[2]



Source: Health Departments 1992

DEMOGRAPHIC EFFECTS

4.8 The expected demand for doctors can be measured against demographic predictions with appropriate weighting for ageing of the population. Therefore we forecast the demand for GPs on that basis.

4.9 Data from the Office of Population Censuses and Surveys (OPCS) shows the UK population increasing in both size and age into the twenty-first century (table 4.1). An increase in the population of 4.3%, while keeping current list sizes constant, would require an increase of around 1,400 GP principals by 2011.

TABLE 4.1 **DEMOGRAPHIC INFORMATION 1991 & 2011**
(United Kingdom)

YEAR	TOTAL POP.	Increase	Over 75s	Increase
1991	57.6m		4.0m	
2011	60.0m	4.3%	4.5m	12.5%

Source: Government Actuary Department 1992

4.10 As the average age of the population increases there will be greater demand for GP services. The over 75s make more demands on general practice as on average they require 7 to 8 consultations a year. The average for the population as a whole is 4 consultations per year. This increase could partly be accommodated by greater use of practice nurses and community nurses for routine care.

LIST SIZES

4.11 Another determinant of the numbers of GPs is the list size. Figure 4.3 shows the reduction in average UK list size since 1979. We have received evidence detailing the desirability of a further reduction to average list sizes. The continued search for improvements in patient care and new or increased demands on the GP's time such as management tasks, training responsibilities, continuing medical education, increased consulting times and expectations for greater leisure time, are all factors to be considered in relation to possible reductions in list size. Of course as individual list sizes decrease, so does the income GPs derive from their capitation payments. The RCGP, in particular, acknowledged this apparent conflict of interests but still forecast a reduction in list size.

4.12 On the balance of the evidence we believe that it is likely that list sizes will continue to reduce until they reach an average UK list size[3] of 1700 by the year 2010. This projection assumes a slowing down of the growth in GP numbers. We anticipate that there is potential for growth in the number of GMS non-medical staff as the older, smaller practices are gradually replaced by larger and more "modern" group practices. This means that expansion in GMS activity will not necessarily require equal growth in GP numbers.

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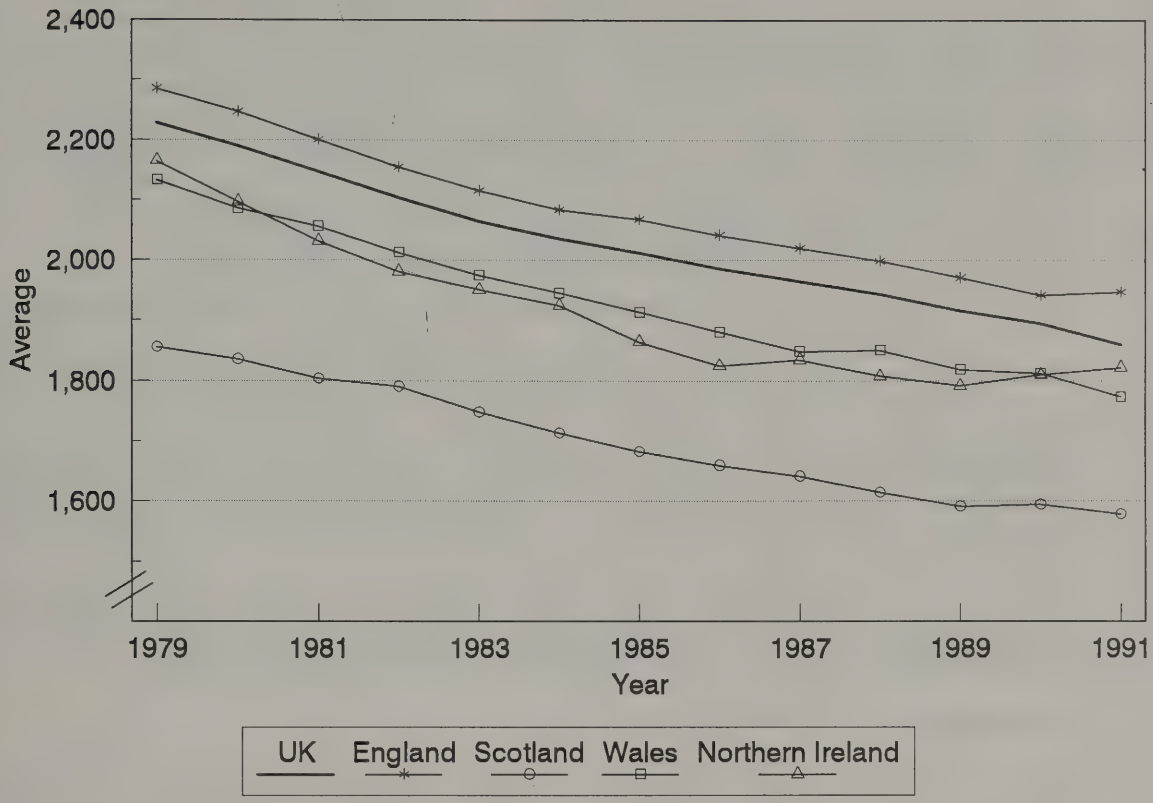
[3] As shown in figure 4.3 average list sizes in Scotland are already substantially lower. This reflects the large geographical areas covered by some Scottish practices.

FIGURES 4.3 AVERAGE GENERAL PRACTITIONER LIST SIZES[4]



Source: Health Departments 1992

THE BACKGROUND OF CHANGE

24 Hour Cover

4.13 The recent vote of GPs' Local Medical Committee representatives to explore options for GPs to opt out of their responsibility for 24 hour cover could be seen as an attempt by general practice to increase the attractiveness of general practice as a career. Younger GPs are less likely to put up with the traditional demands of working long hours. This reflects changes in working patterns, discussed in more detail in chapter 8. The issue revolves primarily around the utilisation of resources rather than manpower and we have not considered its possible impact on manpower demand. It is an issue to which we may return in the future.

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[4] Figures for the average GP list sizes are given at appendix 7, table 7C.

Shift To Primary Care

4.14 The current policy shift to primary care, will increase the GP's workload. Any accompanying shift in resources from other sectors should be used to develop the primary health care team. Much of this workload could then be distributed within the team, reducing the actual burden on individual GPs. (This argument is more fully developed in paragraphs 3.11 - 3.19 in the context of skill-mix.) There would be an expanded role for the primary health care team although the GP would remain responsible for the patients within a practice.

4.15 The scope for such development is of course dependent on it being adopted by GPs. A reduction in the number of clinically isolated GPs, and the ability of other members of the health care team to cover existing tasks rather than addressing new demands, would also be required. Current initiatives on skill-mix are examining the potential benefits to the health care team. We consider that this is an important area and we recommend research at chapter 14.

4.16 We anticipate increased spending on primary care and general practice will be directed towards a wide range of improvements, not just increased numbers of GPs.

Changes To The GP Contract

4.17 We received evidence from both the British Medical Association and RCGP which pointed to increased workloads following the revised contract. Although there is a perceived demand for increased manpower, we are unable to quantify any measure of that increase at the present time.

Inner City Practices

4.18 There has been considerable progress since the early 1980s but some recruitment difficulties still exist in inner cities and some rural areas. This is notable in inner London where there is a large proportion of single handed practices or husband and wife teams. Single handed principals include a high proportion of older doctors and as they retire it can be difficult to replace them. We would support improvements to the general practice infrastructure, more up-to-date premises and access to support staff, to create conditions in which doctors would be able to offer the sort of modern general practice for which they have been trained. We recognise the difficulties faced in recruiting GPs to inner city practices. We expect changes in primary care delivery in inner cities (especially in London if the recommendations on primary care contained in the Tomlinson report[5] are implemented,) and may return to this area in a later report.

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[5] Department of Health. Report of the inquiry into London's health services, medical education and research. 1992.

Patients' Expectations

4.19 The Patient's Charter has contributed to the already increasing demand for GPs to provide improved patient consultation. Although the treatments patients receive from the hospital service are increasingly complex, patients are often being discharged earlier from hospital. GPs, in conjunction with their hospital doctor colleagues, have a responsibility to provide patients with explanation and reassurance. The effect of these changes on the overall workload has not been quantified.

Length Of Vocational Training

4.20 Any increase in the length of the vocational training scheme could affect manpower supply in general practice in the short term. The RCGP have argued against altering the length of training which is already one year longer than required by the EC Directive on Vocational Training for General Practice (86/457/EEC). We have noted the time that GP Trainers spend on training GPs and the need to accommodate continuing education for GPs themselves.

5 HOSPITAL CAREER GRADES

INTRODUCTION

5.1 Career progress is along two main pathways: general practice and hospital medicine. We have dealt with the former in Chapter 4, and we now turn to the latter. We consider public health medicine and hospital career grades other than consultants at the end of this chapter.

5.2 Between 1980 and 1990 the number of consultants grew on average by 2.2% per year. Achieving a Balance (1987) indicated that the existing rate of consultant expansion of about 2% per annum should be maintained and additionally a greater proportion of patient care should be provided by fully trained doctors. This move towards a consultant-based rather than a consultant-led service is breaking down the direct relationship between a consultant and his or her "firm". However, as the term suggests, a consultant-based service is dependent on the consultant as the pivotal grade. The arguments put to us for an expansion in consultant numbers are set out below, based on the assumption that other factors will remain the same. Some reasons that this assumption may not hold true are set out in paragraph 5.7 below.

THE CASE FOR CONSULTANT EXPANSION

5.3 We received detailed written evidence from the Conference of Medical Royal Colleges, which was supplemented by their oral presentation. They emphasised their view that current levels of consultant staffing are insufficient to meet current needs and that a 50-60% increase in consultant numbers was required. Similar figures, suggesting a shortage of consultants, were presented in evidence from many other bodies.

5.4 The case presented by the Royal Colleges was founded on detailed arguments about the needs in each specialty. These largely fell into three broad categories: prevailing needs of the population for medical treatment; assessment of the per capita workload; and comparison with other countries. One example from each category is quoted below to illustrate the basis for the arguments being advanced by the Colleges in relation to different specialties.

> **5.4.1** Population need: in neurosurgery the specialty stated that the minimum number of consultants needed to provide a safe 24 hour emergency service was 4 per unit, linked to the defined population size. This would require an increase from 2 to 3 consultants per million people.

5.4.2 Per capita workload: the Royal College of Radiologists said that there had been no increase in the number of consultant clinical oncologists for 11 years, but that 20% more cancer patients had been referred, and the impact of the increased number of patients with AIDS related tumours had not yet been quantified. More consultants were needed to cope with this extra workload.

5.4.3 International comparisons: we were told that in the UK there are 0.5 Urologists for 100,000 population. By contrast there are 1.3 in France, 2.8 in Belgium, 2.9 in the Netherlands, and 3.5 in Germany.

5.5 A number of more general factors were identified by the Medical Royal Colleges to strengthen their case for consultant expansion.

5.5.1 Demographic changes: paragraph 4.9 and table 4.1 showed that the UK population is expected to increase by 4.3% by the year 2011, with a 22.7% increase in the over 80s. There is no simple relationship between increase in population and increase in health care needs. With the greater relative increase in the elderly will come a greater need for care than the 4.3% increase suggests, as it is the elderly who make the greatest demands on health service resources.

5.5.2 Management responsibilities: we received evidence that the recent Health Service reforms have increased the consultant role in management. Consultants now have significant management responsibilities; however the size of this increase has not yet been quantified.

5.5.3 Postgraduate and continuing medical education: consultants must take on teaching responsibilities and themselves meet the demands of continuing medical education if standards are to be maintained. The SCOPME (Standing Committee on Postgraduate Medical Education) report on study leave[1] found that on average consultants took 6.4 days study leave per year out of the recommended amount which is equivalent to 10 days per annum. Continuing medical education averaged between 1.6 and 3.2 hours per week. The size of any recent increase in these areas has again not yet been quantified.

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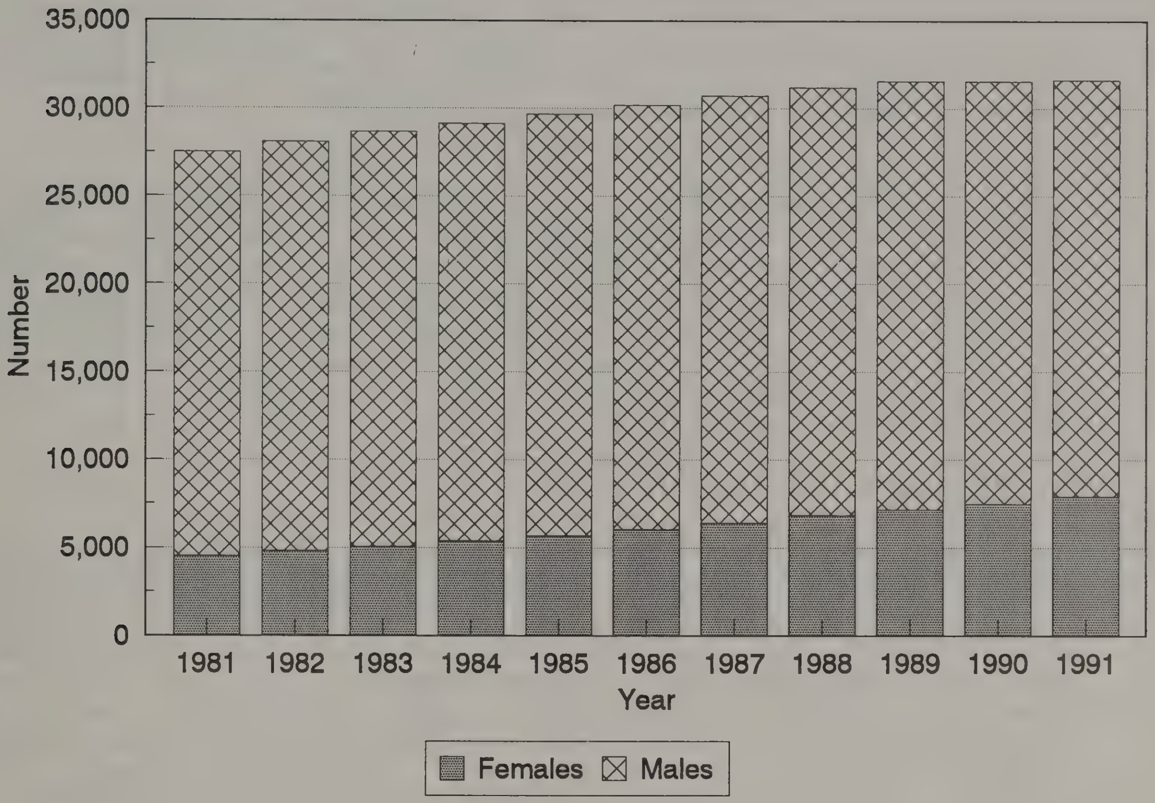

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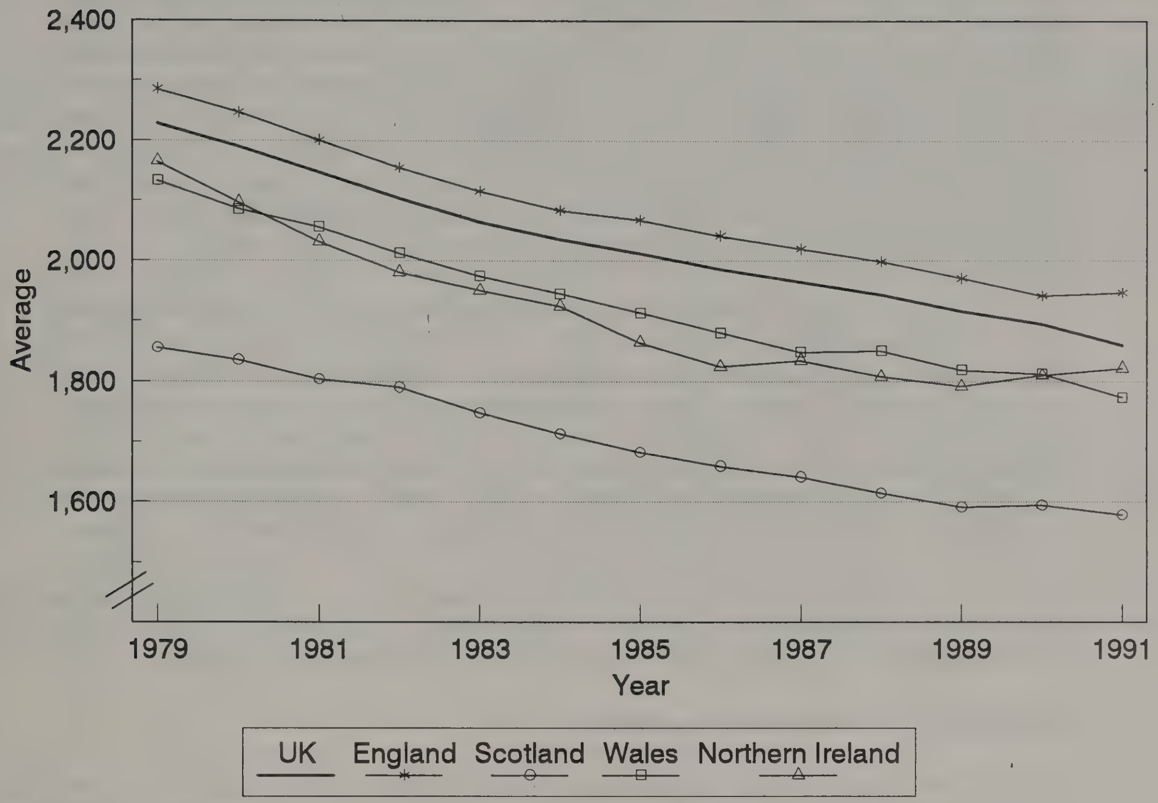

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[1] SCOPME. Uptake and costs of study leave: results of a retrospective survey of 15 health districts in England. 1991.

5.6 We find further elements in the consultant expansion argument put to us by the Medical Royal Colleges harder to assess. Some of these are discussed in more detail in other chapters. They include:-

5.6.1 The implementation of Achieving a Balance in moving from a consultant-led to a consultant-based service. It is difficult to establish the extent to which this is already taken into account in current trends in the demand for doctors.

5.6.2 The change in the pattern of disease and the emergence of new conditions such as AIDS and the consequent development of appropriate treatments.

5.6.3 The impact of new technologies and treatment to improve patient care; for example, minimally invasive surgery often needs highly specialised consultant skills.

5.6.4 The pressure, from patients, for more time to be spent in out-patient consultations, as suggested in the Patients' Charter.

5.6.5 Finally, the Royal Colleges argued that increased specialisation in all branches of medicine will require more consultants overall. As we note in chapter 3, in practice the impact will depend largely on how purchasers and providers choose to deliver services in the new NHS internal market.

MODERATING FACTORS

5.7 While we are impressed by the force of a number of the arguments put by the Royal Colleges, we have considered the extent to which different working practices will offset the need for more consultants. For example:

5.7.1 Changes to the skill mix of non-medical and medical staff may decrease the consultant (and other staff) workload, for example, by freeing doctors to spend more time in clinical activities.

5.7.2 Management training and the introduction of clinical audit should improve efficiency.

5.7.3 New medical techniques, as well as providing opportunities for improved care, may also lead to improved efficiency.

5.7.4 The closer integration between primary and secondary care, may have an effect on the demand for consultant expansion.

5.8 We recognise, too, that consultant expansion need not be evenly distributed across specialties. With any need for expansion the detailed requirements of the individual specialty and the impact of local service need to be considered.

5.9 We do not take into account here the impact of the New Deal[2] with the reduction of junior doctors' hours, and changes in working patterns. We discuss these in other chapters. These factors could all affect the need for consultants.

CONCLUSIONS ON CONSULTANT EXPANSION

5.10 We recognise that there are some areas where an increase in consultant numbers will be necessary. These include the effect of demographic changes and the increased involvement of consultants in management and audit within the reformed Health Service. Thereafter, the extent to which new technologies, change in disease patterns, and other factors will affect demand for manpower is largely speculative. Achieving a Balance set out a recommendation for a consultant growth rate in excess of 2% per annum. In the event, expansion has varied between specialties, with some (such as clinical oncology and plastic surgery) experiencing very little expansion, while others, (for example, paediatrics), have expanded rapidly.

5.11 The speed of consultant expansion will be limited by the availability of resources and the numbers of doctors in training. In this report we do not recommend that the Government should aim to achieve a specific percentage increase in the number of consultants. Instead, we have developed projections of demand based on the likely availability of resources rather than by detailed assessments of specialty needs[3]. We have established the direction in which consultant numbers will move but not specified the speed with which increases should be made.

5.12 We have to consider what is the best level of patient care that the country can afford within the resources available. Nonetheless, the evidence presented leads us to conclude that we need to maintain a steady increase in consultants in the NHS, to continue to provide excellence of patient care over the next twenty years and beyond. Career grade expansion is a key element in determining the balance of demand and supply within the medical workforce.

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[2] Junior Doctors: The New Deal. 1991.

[3] Demand assumptions are summarised in chapter 12.

NON-CONSULTANT HOSPITAL CAREER GRADES

5.13 Numbers of **associate specialists** are small and have declined in real terms relative to consultant growth. There were 1,346 in 1980 and 1,154 in 1990.

5.14 The **staff grade** was created as a result of "Achieving A Balance" with a ceiling set at 10% of consultant numbers. It was envisaged that posts would be released at 200 per year over the first five years in England and Wales and at 100 per year thereafter. The rate of release has been accelerated recently to help in reducing junior doctor's hours.

5.15 Together, associate specialist and staff grade posts accounted for 6.7% of career grade doctors in 1990. We expect the demand for associate specialists and staff grade doctors to increase in line with the general demand for doctors. Currently there are no controls on associate specialist numbers who are appointed on an individual basis. Staff grade posts have to be kept within their 10% ceiling[4]. Whether the ceiling should be relaxed is a question we have not considered at this stage.

5.16 Hospital practitioners and **clinical assistants**, although usually appointed on a permanent basis, are largely general practitioners working part-time in hospital clinics. There were 9,805 in post in 1990. Most of these doctors work only one or two sessions per week and thus account for only 2,545 whole time equivalents. We anticipate that overall numbers will remain relatively stable, although there may be a shift in the balance between the two grades as more doctors become able to take up the more prestigious hospital practitioner posts.

PUBLIC HEALTH MEDICINE

5.17 The report of the Acheson Inquiry into Public Health in England[5] recommended an increase in public health doctors. As a consequence, the Department of Health has been funding public health training posts centrally such that by the year 1995, some 400 new training posts will have been created[6]. Recent initiatives such as Health of the Nation and the introduction of the concept of health care purchasing as outlined in Working for Patients have further raised the profile of this medical career path. We do not, in our first report, attempt to examine the likely changes in demand for public health physicians, but our broad view is that manpower needs in this specialty will continue to grow, at least in the short term.

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[4] In Scotland there is no ceiling on staff grade numbers, but appointments are carefully monitored.

[5] Public Health in England: Report of the Committee of Inquiry into the future development of the public health function 1988.

[6] Public Health Medicine training is not centrally funded in Scotland or Northern Ireland, where it was considered that there were sufficient posts.

6 HOSPITAL CAREER STRUCTURE

INTRODUCTION

6.1 Medical education is probably the longest course of sustained education and training that can be undertaken in the United Kingdom. A doctor is said to be in training until attaining a career grade[1].

6.2 The traditional medical career structure comprises two main routes through postgraduate training: one for junior doctors aspiring to consultant posts; and one for those aspiring to positions in general practice. Within the hospital career structure are two distinct groups - career grade doctors and doctors in training.

6.3 Students who enter medical school in the autumn of 1992 will spend between five and six years as undergraduates, completing an initial two or three year pre-clinical course, followed by clinical experience for up to three years. In 1997 or 1998 as newly qualified doctors they will undertake a Pre-Registration House Officer year working under supervision. By 1998 or 1999 they will have gained full registration with the General Medical Council (GMC) and be seeking further training posts to obtain general professional experience. If these young doctors wish to continue working towards a career in the hospital service, they will select a specialty and progress through the higher professional training grades, until appointment to a career grade post. Training periods vary according to specialty and individual circumstances but a consultant appointment would be unlikely before the year 2006.

6.4 The career structure must provide suitable training to enable doctors to reach standards set by the Medical Royal Colleges and ensure that the service requirements of the NHS are met. Under current arrangements this often places strain on junior doctors whose service responsibilities and educational commitments may come into conflict.

6.5 Historically, medicine has had an excellent staff retention record which is particularly important given the cost to the taxpayer of medical education. However, since medical techniques advance rapidly, it is difficult to return to medicine following a career break. It is important that the career structure both provides a realistic basis for the aspirations of junior and senior staff and incorporates flexibility of career path.

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[1] Career grades: Consultant; General Practitioner; Associate Specialist; and Staff Grade.

SPECIALIST MEDICAL TRAINING AND THE EC DIRECTIVES

6.6 The EC Directives 75/362 and 363, 82/76 and 89/594 set out minimum training standards and provide for the mutual recognition of specialist medical qualifications facilitating the freedom of movement of EC doctors within the community. The EC has raised some matters of concern about the way in which the UK has implemented these directives. A working group chaired by the Chief Medical Officer (CMO) has been established to advise UK Health Ministers on any action which needs to be taken to bring the UK into line with EC law on specialist medical training. The group will report its recommendations to the Secretary of State by March 1993.

6.7 The remit of the working group is wide. Not only will it look into the issue of accreditation[2] and appointment of consultants, but it also plans to examine the structure of postgraduate medical training in the UK. Indeed it presents the opportunity for a thorough review of the present arrangements for training doctors. Implementation of the group's recommendations may therefore lead to significant changes in the medical career structure and hence in medical manpower numbers and configuration between grades.

6.8 We will keep the outcome of this process under review and will address the likely impact on UK manpower in a subsequent report.

PRE-REGISTRATION HOUSE OFFICER (PRHO)

6.9 We have received evidence suggesting a need to reform PRHO training. The debate on precisely what form change might take is continuing and no preferred option has yet emerged. Changes to the length of the pre-registration period could have implications for the supply of trained doctors in the UK. If necessary we will re-visit this issue.

SPECIALIST TRAINING

6.10 We support the views expressed in evidence by the Conference of Medical Royal Colleges, who are working towards shortened training programmes for hospital specialists, and agree that a single higher training grade, to replace registrar and senior registrar grades, should be a long-term objective[3]. We have also noted proposals for reform made by the National Association of Health Authorities and Trusts (NAHAT) in their recent report[4].

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[2] Accreditation can be defined as the recognition awarded by the Higher Training Committees on completion of a series of posts recognised as suitable for specialist training.

6.11 The European Medical Directives stipulate the minimum lengths for specialist training courses which vary from 3 to 5 years depending on the specialty. We have noted that UK specialist training, which enables a doctor to apply for an NHS consultant post, takes considerably longer than the minimum period stipulated in the directives.

6.12 We consider that a shorter period of higher specialist training is not incompatible with maintaining or improving training standards, provided a managed approach is adopted. The CMO's working group will be examining this issue in detail.

6.13 "Achieving A Balance" foresaw continued consultant growth as important to provide both the leadership and the career opportunities an expanding service requires if the excellent standards of patient care are to be maintained. A reduction in the length of higher specialist training will increase the ratio of consultants to junior doctors and thus facilitate an increase in consultant numbers within the same total number of doctors.

6.14 There are approximately 4,000 senior registrars in post, and (assuming a 4 year training cycle) about a thousand junior doctors complete their higher specialist training each year. Shortening higher training, would enable doctors to compete for consultant posts at a younger age than at present. This could fuel a more rapid expansion of the consultant grade. For example, shortening senior registrar training by one year would release an extra thousand candidates for consultant posts. Shortening the time spent in the career registrar grade by a further year would duplicate this effect, releasing a wave of additional candidates for Senior registrar posts who, some three years later, would further increase the pool of candidates for consultant posts.

6.15 We expect that these changes would be phased in, and do not expect a sudden expansion either in the pool of candidates or in consultant numbers. Indeed a shorter period of higher training would be translated into accelerated consultant expansion only if there were a matching increase in the resources needed to appoint new consultants. However, the cost of their appointment would be partially offset by the reduction in numbers of doctors in training.

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[3] This issue has been on the agenda for some time. Achieving A Balance, DHSS, 1986, foresaw its long term implementation.

[4] Training and the hospital career structure - A NAHAT discussion paper. 1992.

CONTINUING MEDICAL EDUCATION (CME)

6.16 We were given no evidence that improvements to CME, with the introduction of more structured arrangements monitored by the Postgraduate Dean, would directly affect manpower numbers. We recognise, however, that CME must have an impact on medical time. The possible introduction of recertification would also increase the demand on doctors' time and could have an impact on manpower numbers.

SUMMARY

6.17 We have received much evidence supporting changes to the hospital career structure. Until the outcome of discussions on specialist medical training and the EC Directives is known we will be unable to evaluate the impact of any changes in manpower terms. We can however speculate on the impact of measures such as shortened training programmes, a unified training grade and their effect on the consultant to junior ratio and numbers in each grade.

6.18 Implementation is made complex by the significant service requirements that make demands on junior doctors' time that would otherwise be devoted to training. Studies by Dowie[5] detail the need for specific study time for junior doctors, and initiatives already under way should assist with implementation.

6.19 We have seen that the implementation of a unified training grade would have major implications for the consultant to junior ratio. We believe that it is essential that the implementation of a unified training grade be accompanied by a change in the current skill-mix between junior and consultant staff. This shift from a consultant led to a consultant based service, accompanied by improved promotion prospects and a shorter, more structured training schedule for junior doctors, should ensure that the medical career structure remains in balance.

6.20 We look forward to the recommendations from the Chief Medical Officer's working group on specialist medical training; and those with implications for future manpower planning will be taken into account in our work during 1993.

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[5] Dowie R. Patterns of Hospital Medical Staffing. 1991.

7 JUNIOR DOCTORS' HOURS OF WORK

INTRODUCTION

7.1 The NHS provides continuous patient care in acute and long term hospitals 24 hours a day. The cover for medical services is largely provided by junior doctors. This involves a substantial amount of time on duty at weekends and outside normal working hours, often resulting in junior doctors working unacceptably long hours.

THE NEW DEAL

7.2 The New Deal[1] set clear targets and timescales for reducing junior doctors' hours of work. It also introduced the concept of full and partial shifts alongside the existing on-call rotas. In the light of early progress in reducing long contracted hours of duty Ministers set a target date 1 April 1993 for reducing contracted hours to a maximum average of 83 per week for those on on-call rotas, 72 per week for those on partial shifts and 60 per week for those on full shifts. This replaced the initial requirement for this to be achieved as "soon as practicable."

7.3 By the end of December 1994 doctors on on-call rotas in hard pressed specialties should have maximum average contracted hours of 72 per week, all doctors working on full shifts should have maximum average contracted hours of 56 per week, and those on partial shifts maximum average contracted hours of 64 per week. By that date no junior doctors should normally be expected to work for an average of more than 56 hours per week regardless of their contracted hours of duty.

7.4 The aim, subject to review by the Ministerial Group on Junior Doctors' Hours of the practical implications, including the financial consequences, is to reduce contracted hours for doctors working on on-call rotas in non hard pressed posts to a maximum average of 72 per week by the end of 1996, though with the proviso that in certain circumstances doctors in higher specialist training may continue to contract for up to 83 hours a week.

7.5 The intention is to achieve at least the first two stages in the hours reduction process without significantly increasing the number of junior doctors, by using a variety of approaches.

7.5.1 Increased numbers of career grade posts for which funds have been made available. These have enabled Health Authorities in England to establish 350 consultant posts and 150 staff grade posts over the last two years[2]. The expansion in consultant posts is additional to that proposed in Achieving a Balance.

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[1] Junior Doctors: The New Deal. 1991.

7.5.2 Increased use of shift system working, adaptation of existing on-call rotas to provide time off after nights on-call, increased use of team working by consultants and extension of cross cover arrangements.

7.5.3 Developing the role of nurses, midwives, clinical support staff (for example, phlebotomists) and clerical, administrative and other staff to carry out work currently inappropriately undertaken by junior doctors.

7.6 In England, the number of junior doctors contracted for more than 83 hours has fallen from 13,328 to 3,234 (some 75%) between September 1990 and August 1992. At present some 6.5% of juniors in England are contracted on full and partial shifts. There have also been significant reductions in over 83 hour posts in Scotland, Wales and Northern Ireland.

7.7 We consider that these initiatives are crucial to maintaining 24 hour high quality patient care, and at the same time continuing the improvements to junior doctors' training. There are early indications that much can be achieved to improve the continuity of patient care, without the need for extra medical staff.

EC DIRECTIVES

7.8 Progress towards these targets may well be intensified by the need for action on the Directive on Working Time currently under consideration by the EC Council. If enacted, this would require working hours to be reduced to 48 hours a week, compared with the 56 hour target set out in the New Deal. If approved as currently drafted, without any derogation for medical training, hours would need to be reduced to 48 within a three year period. Meeting the EC requirements would require additional junior and senior staff assuming that current working practices and training arrangements remain in place.

SUMMARY

7.9 We expect that, although the EC Directive might not be enforced immediately, pressure for reduced working hours for both junior and career grades will continue. On this basis, we recognise that current mechanisms should be extended to reduce hours without significantly increasing junior doctor numbers.

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[2] Additional posts have been created in Scotland, Wales and Northern Ireland through central funding.

7.10 We support the continued introduction of changes to the delivery of care, relying more on the skills of nurses and clinical support staff to undertake appropriate work, while recognising that other professions have their own manpower problems. The arguments for changes to the skill-mix have been discussed in more detail in chapter 3; however we are, as yet, unsure of the scope for substantial manpower savings.

7.11 We have looked at the likely effect of proposed changes to the current medical career structure. These will be aimed at reducing training periods and substantially redistributing workloads. However there is no doubt that at least some of these changes will impact on junior doctors' hours and we await the outcome of current discussions on this issue.

7.12 It is not yet possible to estimate the additional requirements for medical manpower at either junior or senior levels to achieve the 1996 targets for reductions in junior doctors' hours, nor to evaluate the implications of the EC Directive on Working Time. We propose to revisit this topic in the light of the review referred to in paragraph 7.4.

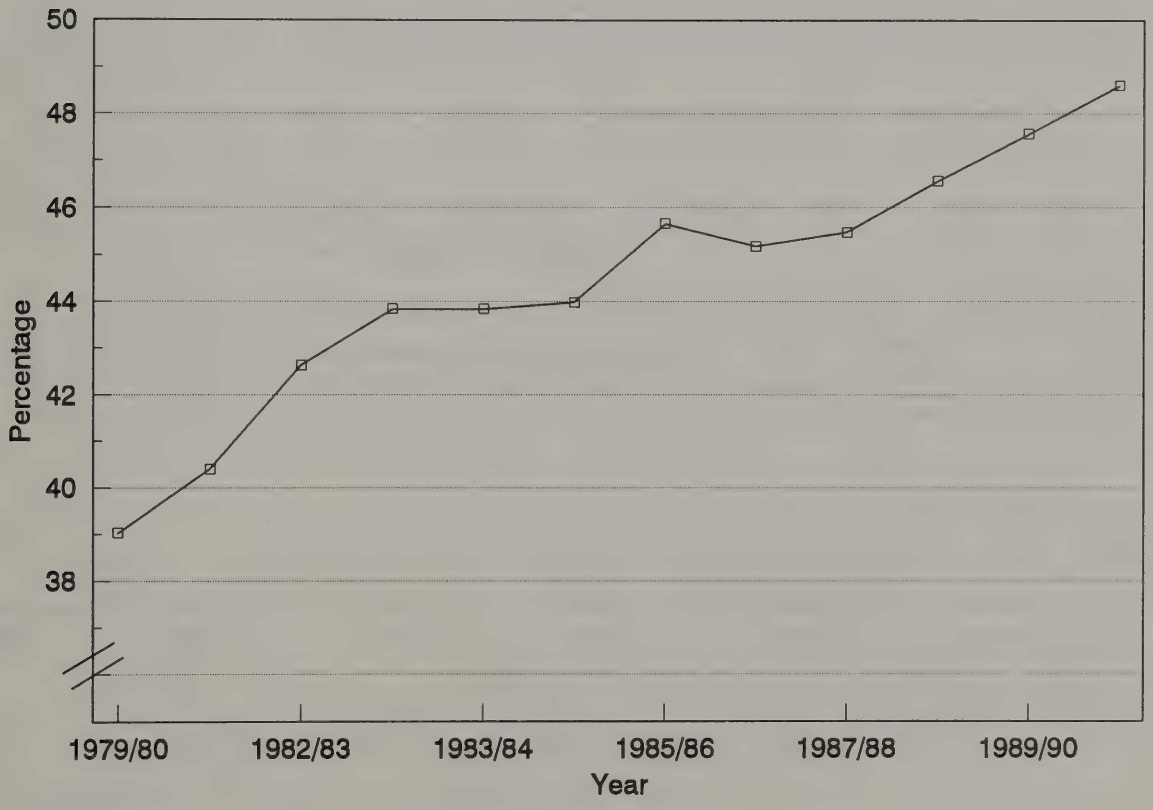
8 FLEXIBLE WORKING PATTERNS

INTRODUCTION

8.1 Medical manpower planning is not only a question of balancing supply and demand. It must make certain assumptions on the social aspects of doctors' participation in the workforce; and how that employment can meet the needs of both the individual and the service.

8.2 We are in no doubt that the attitude of doctors to their careers is changing. Changes in career expectations throughout society can be seen in lower retirement ages[1] and an increase in career flexibility. In this chapter we have attempted to distinguish between the desire for such changes and the likelihood of their actual occurrence.

FIGURE 8.1 **PROPORTION OF FEMALE STUDENTS IN MEDICAL SCHOOL INTAKE (UNITED KINGDOM)**[2]



Source: Universities' Funding Council 1992

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[1] Wilson R, Stilwell J. The National Health Service and the Labour Market. 1992.

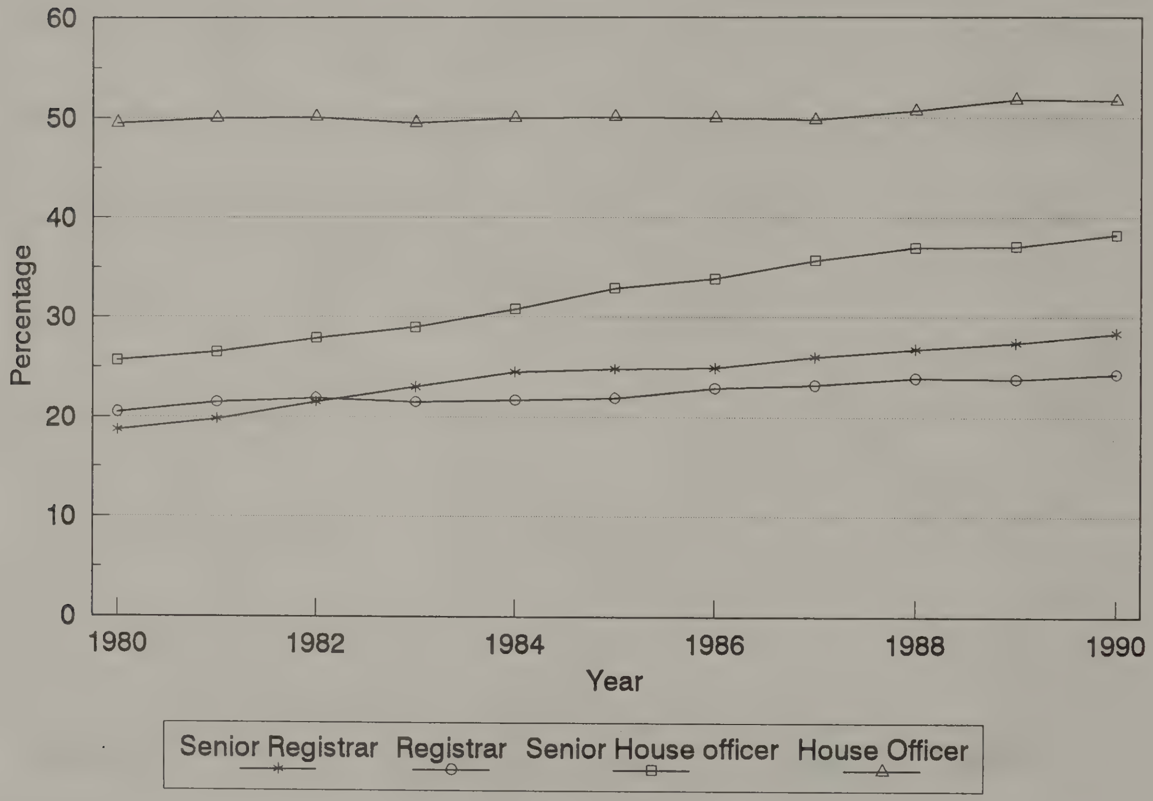
[2] Table 7D at appendix 7 gives a full break down of the medical school intake in the 1980s.

WOMEN IN MEDICINE

8.3 Although there continue to be more male than female doctors, the rising proportion of female medical students is significantly altering the gender balance of the profession. Figure 8.1 shows, the proportion of female medical students had nearly reached 50% by 1990.

8.4 We expect the proportion of women in medicine across the profession to continue to rise in line with this increase in female student numbers. The recent changes in the percentage of female doctors in the hospital training grades is illustrated at figure 8.2 and bears out this proposition[3].

FIGURE 8.2 PROPORTION OF FEMALE DOCTORS IN HOSPITAL TRAINING GRADES (Great Britain)



Source: Health Departments 1992

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[3] Table 7B at appendix 7 gives the numbers of female doctors in general practice.

8.5 At the same time both men and women throughout society are re-assessing the way in which they work. As a result, there is an increased demand among doctors for shorter, more flexible working hours. We believe medicine must respond to this challenge.

Differences Between Specialties

8.6 In some surgical specialties the proportion of consultants who are women is less than 1%; women are also seriously under-represented in some medical specialties. By contrast, there is a greater proportion of female consultants in paediatrics (26%), microbiology (29%), psychiatric specialties (26%), radiology (21%) and anaesthetics (20%). Other specialties, such as ophthalmology, geriatric medicine and obstetrics and gynaecology have between 10% and 13% female consultants[4].

8.7 The Joint Working Party on "Women Doctors and their Careers"[5] noted the under-representation of women at consultant grade in the surgical specialties, as a result a scheme for women in surgical training (WIST) has been introduced. We hope that this scheme will be effective and urge the profession to continue to take action in this field.

CAREER FLEXIBILITY

Provision of Part-time Training

8.8 The provision of part-time training has risen during the 1980s but has not matched the increase in the proportion of women in medicine. Current criteria for admission to part-time training are well-founded individual reasons, such as domestic commitments, disability or ill health.

8.9 A scheme in England and Wales[6], for part-time training for senior registrars, has been in existence since 1979, and a new one for career registrars was launched in January 1991. This reserves 5% of a specialty's registrar quota for part-time posts and introduces central funding for all new posts for a limited period. The senior registrar scheme is currently under review by the Joint Working Party on Flexible Training, who are also looking at possible arrangements for part-time SHOs. Some regions already run their own part-time training schemes. Flexible training at Pre-Registration House Officer level has always been available on a personal basis by agreement with the Regional Postgraduate Dean.

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[4] Figures are for Great Britain.

[5] Department of Health. Women doctors and their careers: report of the Joint Working Party. 1991.

[6] In Scotland a sub-committee of the Advisory Committee on Medical Establishments (ACME) has submitted recommendations in a report entitled "Part Time Training and Working for Doctors in Scotland". In Northern Ireland a Working Group was set up by the Chief Medical Officer and a report "Women Doctors and their Careers" was published in January 1992.

8.10 The New Deal on Junior Doctors' Hours is introducing shorter, more flexible, shift-based patterns of working which make the incorporation of part-time working easier. Job sharing continues to be rare, but provides an alternative method of flexible working and we hope that recent publicity of job share posts will increase awareness of these opportunities.

8.11 A study by Allen[7] has identified improved provision of part-time training and creche facilities as the two changes most desired by female doctors to assist with their careers.

8.12 The minimum level of part-time training is 5 sessions per week, although many part-timers work six or seven sessions. This is particularly relevant to the length of medical training, in that it has been assumed in some specialties that part-time workers need to spend twice as long in grade as full-time staff. Once the **training** requirements have been satisfied, emphasis should be given to actual **clinical experience** rather than the precise length of time spent in the grade.

8.13 Doctors who have trained part-time should not be disadvantaged in their career opportunities. The proposed reduction in the overall length of postgraduate training should increase the attractiveness of training part-time.

> **8.13.1** We recommend that the numbers of part-time posts at all training grades are increased. At the same time there should be a recognition that part-time training is normally of equal quality with that gained on a full time basis.

8.14 Employing Authorities have a part to play by developing flexibility within contracts; thus enabling working patterns to be tailored to the needs of the individual doctor as well as the needs of the service. We are of the view that developments in this area should be monitored over a period of perhaps two years, to enable us to evaluate progress in a future report.

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[7] Allen I. Doctors and their careers. 1988.

Participation and Activity Rates

8.15 Like ACMMPII and its Medium Term Model (MTM), we have made no explicit assumptions on activity rates (proportion of doctors actually practising medicine). The Career Simulation Model (CSM), the model we use in this report, only represents those doctors active in the main public sector (MPS), while making assumptions about the rates of joiners and leavers from the MPS. It follows that the concept of activity rates can be replaced by one of joiners and leavers.

8.16 We define the 'participation rate' for a particular group of doctors, as their whole time equivalent numbers (WTE) divided by the number of doctors in the group, or in other words the ratio of whole time equivalents to numbers in post.

8.17 Table 8.1 gives participation rates for 1990 broken down into the hospital and general practice (GMS) sectors.

TABLE 8.1 MEDICAL PARTICIPATION RATES (Great Britain)

	Male %	Female %	Total %
Hospital[8]	95.0	95.0	95.0
GMS	99.0	92.7	97.5

Source: Health Departments 1992

8.18 In general practice, female doctors have lower participation rates than male doctors, and consequently an increasing proportion of female doctors within a fixed medical population will lead to fewer whole time equivalent (WTE) doctors.

8.19 We recognise that predicting the future behaviour and career attitudes of such a varied profession as medicine is extremely difficult. However, we would expect overall participation rates to fall, reflecting the trend in society towards more flexible working for both women and men. Our projections of demand allow for such a trend. However, there would also be benefits in terms of a reduction in those leaving the profession due to dissatisfaction with the terms and conditions, which would at least partially offset any shortfalls resulting from lower participation rates.

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[8] Excluding hospital practitioners and clinical assistants.

EARLY RETIREMENT

8.20 The recent survey by the General Medical Services Committee[9] showed that many GPs were either seeking or considering early retirement. General Practice was seen as an increasingly stressful occupation. No figures were submitted to support this view, but a joint survey by the Health Departments and the profession of GPs' workloads, planned for 1993, should help to clarify the position. Similar arguments were put forward by the Medical Royal Colleges towards earlier retirements in the hospital sector.

8.21 One reason given for early retirement was dissatisfaction and stress. The rising number of career grade doctors and the opportunities of more flexible working should help to alleviate this problem. Indeed doctors taking career breaks early in their careers might wish to retire later, especially if their pension provision is affected.

8.22 Currently, criteria set under the "Achieving a Balance" arrangements annually nominate specialties where early retirements are encouraged.

8.23 We consider that there is insufficient information on early retirement trends. An important factor in an individual's decision of when to retire will continue to be his or her financial position. Current NHS pension provisions suggest that doctors will continue to retire at similar ages to today.

8.24 Although we received anecdotal evidence of an increase in doctors' propensity to retire earlier, we have found no statistical evidence to point towards markedly lower retirement ages. We propose to obtain more detailed information on retirement patterns in order to revisit this issue in our next report. As an interim measure for our modelling we have assumed that the average retirement age will be one year less than at present during 1990-2000 and two years less during 2000-2010.

TRANSFERS AND LEAVERS FROM THE NHS

8.25 The most recent survey of employment outside the NHS was conducted by the Medical Care Research Unit, University of Sheffield.

8.25.1 Their first study[10] estimated that there were 6,960 doctors in medical employment outside the NHS in

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[9] Your Choices for the Future: A Survey of GP Opinion. 1992.

[10] Nicholl JP, Williams BT. Medical employment outside the NHS. 1987.

1986 (1,320 in the Armed Forces, 2,130 in other public services or industry, 980 in the pharmaceutical and private industry, 1,910 wholly in private medical practice and 610 in other areas).

8.25.2 In a follow-up study[11] approximately 15% of NHS doctors questioned had rejoined the NHS within 3 years. These numbers suggested that approximately 2,000 currently registered doctors not working in the NHS would rejoin in the next 3 years, and that a significantly greater proportion of women than men would rejoin.

8.25.3 A third study[12] of deregistered doctors found that, excluding deaths and retirements, around 1,000 UK trained doctors deregistered each year from the GMC list. Most of these went overseas and many return to UK medical employment. Only a very small number in the survey (44) gave up medicine. However, this study did not take into account those doctors who left medical employment, but retained their GMC registration.

8.26 A clear distinction needs to be made between "leavers" from the medical career structure and "transfers" of staff between particular branches of medicine. We have not addressed the concerns of individual specialties. Such an approach lies outside our remit, which is to consider the supply and demand for medical manpower in global terms.

8.27 We recognise that up to date figures are needed to determine the scale and nature of "leavers" from the medical career structure. The recommissioning of the Parkhouse studies[13], which we recommend in Chapter 14, should provide new information.

Commitment to Medicine as a Career

8.28 We have received much anecdotal evidence of a rising number of junior doctors leaving medicine to take up careers, outside the NHS, not traditionally associated with medical graduates. However, there is no firm statistical evidence to substantiate these claims. We consider that there are no grounds for assuming a significant shift in junior doctors' commitment to medicine as a career.

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[11] Nicholl JP, The current occupations of doctors not working in the NHS in 1986. 1990.

[12] Nicholl JP, A profile of doctors who recently deregistered. 1990.

[13] Parkhouse J. Doctors' Careers. Aims and experiences of Medical Graduates. 1991.

SUMMARY

8.29 The rise in the proportion of female doctors increases the pressure on the NHS to make medical working practices more suitable to the needs of both male and female doctors. If these changes do not take place disenchantment will grow as doctors are unable to work and progress successfully, leading to increased drop-out rates. A significant rise in drop-out rates would create the potential for staff shortages with attendant implications for service and patient care.

8.30 It is important that medicine responds to the aspirations of its workforce. We recommend that patterns of working are adapted to suit individual needs. We hope this will result in maintaining the excellent retention and career loyalty that medical staff currently demonstrate. This should ensure that the cost of a medical education is repaid by a working life of commitment to the NHS.

8.31 The nature of the joiners and leavers to the medical career structure and numbers of non-NHS doctors needs to be investigated more precisely. Particular areas that will need investigating include the Armed Forces, Medical Civil Service, Private Medicine, and the Pharmaceutical industry.

9 SELF SUFFICIENCY IN MEDICAL MANPOWER

DEFINITIONS

9.1 For the purpose of this report we have distinguished between doctors from the European Community, referred to as **EC doctors,** and those from non-EC countries, referred to as **overseas doctors.**

9.2 Self-sufficiency does not necessarily mean planning for all UK posts to be filled by UK doctors. Rather, that sufficient UK doctors should be trained so that all UK demand could be met if the flow of UK doctors to other countries was balanced by the flow of EC and overseas doctors into the UK.

INTRODUCTION

9.3 All the evidence we received supported the principle of self sufficiency in medical manpower in the UK. The most compelling reasons are that flows of EC doctors were too unpredictable to be relied upon for manpower planning purposes, and current immigration legislation rules out substantial numbers of non-EC overseas doctors filling career posts in the NHS. For the foreseeable future, we assume that the majority of career posts will be filled by UK trained doctors.

9.4 The main attraction of employment in the UK to doctors from overseas should be the acquisition of skills and knowledge relevant to medical practice in their country of origin. We should not be encouraging doctors to develop an international career at the expense of their home country which may be unable to attract replacement medical manpower.

9.5 At the same time, it is both inevitable and desirable that there will be global exchanges of doctors from continent to continent and from country to country. We support the view that "home produced" doctors will always be supplemented by doctors trained abroad.

EMIGRATION OF UK DOCTORS

9.6 Numbers of doctors emigrating from the UK are difficult to quantify. The GMC holds details of doctors who intend to practise medicine abroad on an "overseas list", but there is no guarantee that doctors leaving to work abroad will remain on the list. Additionally, doctors from the UK who are working in the EC do not appear on this list and are not obliged to change their registration details. However, as ACMMPI and II reported previously, we consider that the numbers of doctors emigrating are small and are likely to remain so throughout our forecasting period.

SUPPLY OF OVERSEAS DOCTORS

9.7 Supplies of doctors from overseas depend on a number of factors which are outside the control of medical manpower planners in the UK. The primary influence might be the attraction of a career in medicine in the UK as opposed to the relative merits and availability of a career in medicine in the home country or elsewhere. Such an attraction might be modified from time to time by variations in the economic or political climate in the home country, or changes to immigration regulations both in the UK and elsewhere.

1985 Immigration Rules

9.8 Home Office immigration rules were modified in 1985[1]. Those overseas doctors who were resident in the UK before 1985 (together with those doctors who become entitled to settled status after 1985) can now be treated for immigration - and hence manpower planning - purposes as "home doctors". Overseas doctors who have entered the UK since 1985 must do so either with a work permit, or, for a limited period of up to four years, on the basis of permit free entry for postgraduate training purposes.

9.9 In the medium term, the 1985 changes were expected to cause a reduction in the numbers of overseas doctors. The available data do not provide the basis for identifying up-to-date trends. It is not clear how quickly any reduction will take effect. We have assumed that the number of "pre-1985" doctors will gradually reduce over time with retirement and that numbers of overseas doctors entering the UK for postgraduate training will stabilise at their present levels.

Overseas Doctors Training Schemes (ODTS)

9.10 Provision has always been made for a certain number of overseas doctors to enter the UK for postgraduate training. Overseas Doctors Training Schemes (ODTS) are run by some of the Medical Royal Colleges, enabling suitably qualified doctors from overseas countries to take up employment in approved hospital training posts.[2]

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[1] Home Office, Statement of changes in the Immigration Rules. 1985.

[2] Applications by overseas doctors to train in Scotland are co-ordinated through a scheme organised by the Scottish Council for Postgraduate Medical and Dental Education.

9.11 Doubt has been cast on the appropriateness of some of the training posts utilised as part of the ODTS. Certain specialties have depended on overseas doctors to fill SHO posts, sometimes at the expense of the training programme. Concern has also been expressed over the effect of the supply of Overseas Doctors diminishing, since it is recognised that they make a significant and valuable contribution to service in the NHS.

9.12 The ODTS needs to be targeted at particular posts which will provide suitable opportunities for postgraduate training. The scheme needs to take into account the training requirements of individual doctors, enabling them to return home with enhanced skills in particular areas relevant to the needs of their home country. One example of good practice in this area is in psychiatry. The Royal College of Psychiatrists provides a course which is tailored to the needs of overseas doctors. We suggest that the ODTS would benefit from the more general changes expected in postgraduate training discussed in chapter 6.

Other Overseas Doctors Entering the UK for Postgraduate Training

9.13 Approximately half of the overseas doctors who come to the UK for specialist training do so outside the ODTS. These doctors generally enter the UK as visitors. They then embark on postgraduate courses having, where appropriate, first passed the Professional and Linguistic Assessment Board (PLAB) test and / or obtained General Medical Council (GMC) registration[3].

Conclusion

9.14 We predict that over the next twenty years there will be a decrease in the number of overseas doctors in career grades as numbers of doctors who were resident "pre -1985" retire. We anticipate that the number of overseas doctors coming to the UK for postgraduate training is likely to remain at current levels.

9.15 We recognise the contribution that overseas doctors make to the staffing of the training grades. We support the provision of excellent and appropriate training within the NHS for overseas doctors, who may then return to their home country to pass on the benefits of the skills acquired in the UK.

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[3] Usually limited but can be full registration if previous qualifications were obtained from one of twenty-two recognised overseas medical schools.

SUPPLY OF EUROPEAN COMMUNITY (EC) DOCTORS

9.16 We received conflicting evidence about levels of medical unemployment in the EC. A recent survey points to a future reduction in the oversupply of doctors within the EC[4].

9.17 Earlier predictions of a possible large influx of EC doctors to the UK have not materialised. The total number of EC doctors granted full registration to practise in the UK between 1977 and 1991 was 7,770. After a slow build up the annual average has levelled off at around 1,000. It is important to note that these figures relate to those granted full registration and not to those who have actually obtained an NHS post in the UK. The total number of EC born doctors in hospital medical posts at all grades was 1,265 (2.5%) in 1990.

9.18 Most EC trainee doctors come to the UK for a relatively short time in order to gain clinical experience not available at home. Their entry into the PRHO grade (where there is capacity over and above current UK medical school output) and progress to the SHO grade will not affect the balance of medical manpower, provided that their presence does not impede access to training for UK graduates. If, however, they progress to the registrar grade in significant numbers there will be an impact on manpower planning.

9.19 We conclude that it would be irresponsible for any country to plan for anything other than self sufficiency in medical manpower. However, we intend to keep the situation under review and will revisit the issue in future reports as necessary.

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[4] Permanent working group of European hospital doctors. Medical manpower in Europe: from surplus to deficit? 1991.

10 MEDICAL SCHOOL INTAKE

INTRODUCTION

10.1 Control of the UK medical school intake is a key mechanism in medical manpower planning. Today's medical students will be the doctors of the twenty-first century. Our task in advising on an appropriate limit is to ensure that as far as possible there is neither an undersupply nor an oversupply of doctors.

10.2 We have adopted a national rather than a regional view of medical school intake. Higher education is a national market and employers must secure the graduates they need. Weighted capitation and the NHS market should ensure that posts are filled.

ROLE OF THE HIGHER EDUCATION FUNDING COUNCILS (HEFCs)

10.3 The distribution of medical intake is a matter for the Universities Funding Council (UFC) and, from 1993-94, for the new HEFCs[1], which have established a Joint Medical Advisory Committee to advise them on national medical issues. The current total intake of 4,230 students is distributed to each medical school as an individual quota, taking account of the capacity of each school and other factors. There is a separate quota for overseas students within the total. Our terms of reference require us to have regard to the Funding Councils as well as to the NHS.

CHANGES IN MEDICAL SCHOOL INTAKE

10.4 The 1968 Royal Commission chaired by Lord Todd[2] recommended the founding of three new medical schools and a significant increase in the capacity of the existing schools. This brought the target intake for UK medical schools to the 4,230 it is today.

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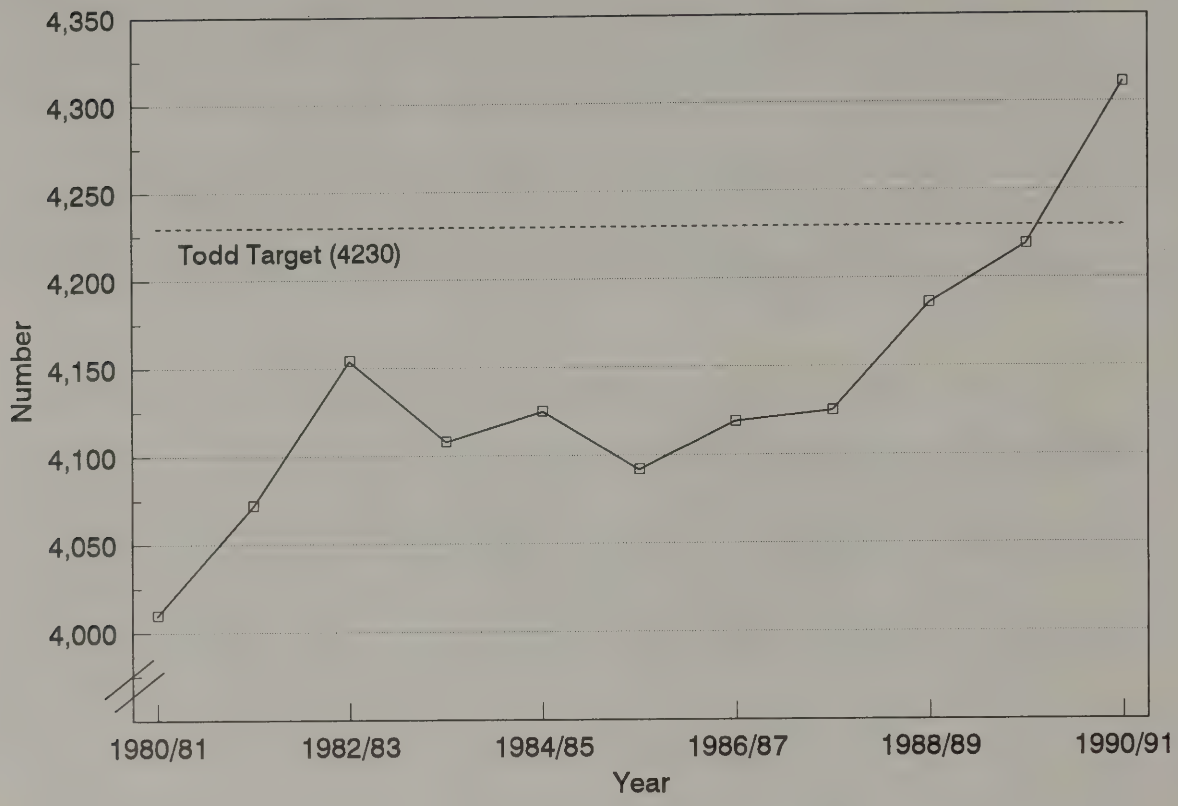
[1] The HEFCs, were created in 1992. They are the Higher Education Funding Council for England (HCFE); Higher Education Funding Council for Wales (HEFCW); and the Scottish Higher Education Funding Council (SHEFC). The new bodies replace both the UFC and the Polytechnics & Colleges Funding Council (PCFC). In Northern Ireland University Funding is under the aegis of the Department of Education for Northern Ireland (DENI).

[2] Royal Commission on Medical Education 1965-68: report. 1968.

FIGURE 10.1 MEDICAL SCHOOL INTAKE (United Kingdom)[3]



Source: Universities Funding Council 1992

10.5 It was not until 1977 that the intake stabilised at around 4,000 students per year. Figure 10.1 shows that throughout the 1980s the medical school intake has edged up towards the "Todd target", finally exceeding it in 1991. The main reason for the target being exceeded is the desire of universities to admit more overseas students.

10.6 The student expansion of the seventies has fuelled the consultant and GP expansion of the late eighties. As the first graduates from the "Todd" medical schools retire in around 2015, the flows into the system will equal the flows out. The pool of UK doctors will therefore no longer increase. Any sustained or new growth would have to be fuelled by further increasing the intake or action to reduce leaving rates.

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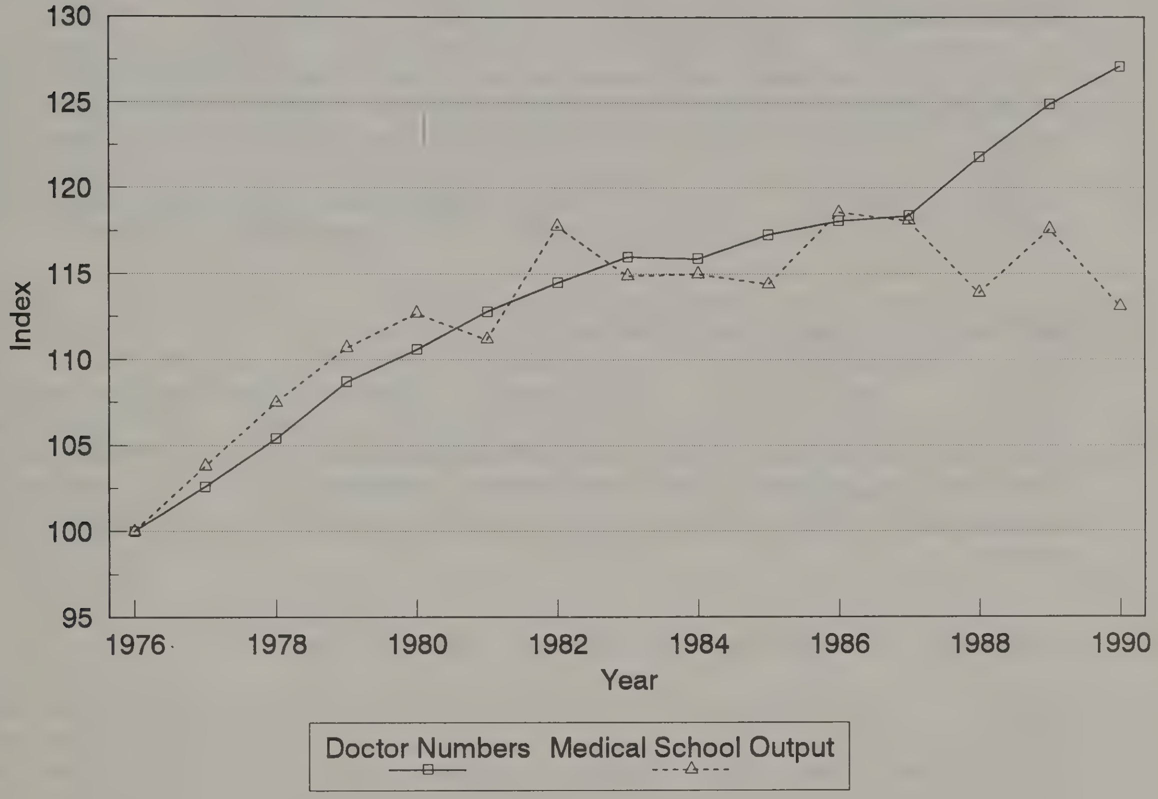
[3] A full breakdown of medical school intake in the 1980s is given at appendix 7, table 7D.

10.7 Figure 10.2 demonstrates this in a simplified manner: the current medical school output is static but numbers of doctors are continuing to rise as more doctors graduate from medical school than retire each year. As noted above, the system will reach equilibrium in around 2015.

FIGURE 10.2 RELATIVE CHANGE IN DOCTOR NUMBERS AND MEDICAL SCHOOL OUTPUT (Great Britain)



Source: Health Departments 1992

MEDICAL SCHOOL CAPACITY

10.8 At our request the UFC conducted a survey on the spare capacity of existing medical schools. The survey indicated a spare capacity of 390 clinical places outside London which could be used at no capital cost. Earlier inquiries had indicated that 150-200 extra places could be provided with some additional capital spending on existing premises[4].

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[4] The survey suggested that spare pre-clinical capacity outside London was some 30-40 lower than this. We believe that since part of the increase in the overseas students quota, which we propose later in this report, is already in the system, it should be possible to accommodate this difference without difficulty.

10.9 The Tomlinson Inquiry[5] has suggested that a reduction in the intake of medical students for London of 150 will be required; and that if MMSAC recommends an increase in the national intake, it should take place outside London. The Secretary of State for Education has asked the HEFCE to take forward implementation of the proposals. This is likely to take up some of the spare capacity outside London. Allowing for this, we anticipate that the available spare capacity in medical schools post-Tomlinson will be around 240 places without any extra capital expenditure.

10.10 Any larger increase in student numbers would require either opening a new medical school, which would involve major capital costs; or adapting the premises of existing schools, which would involve lower but still significant capital costs. We make recommendations about the required size of medical school intake in chapter 15.

ENTRANTS TO MEDICAL SCHOOL

10.11 We have considered whether medicine still attracts the traditional high calibre, committed students. Figures obtained from the Universities Central Council on Admissions (UCCA), illustrated at appendix 7E indicate competition for places at medical schools is as strong as ever.

CHANGES TO THE MEDICAL SCHOOL CURRICULUM

10.12 Any change in the structure of the curriculum may affect the capacity of medical schools to produce medical graduates and the capabilities of the graduates so produced. Curriculum change is therefore relevant to manpower planning.

10.13 The content of the undergraduate medical school curriculum is under review and the GMC are expected to produce recommendations by the end of 1993. The GMC consultation document[6] has identified the likely scope of these proposed changes. The emphasis is likely to be on reducing the factual content; placing more emphasis on problem solving and other skills; increasing teaching in the community; and earlier contact with patients. It suggests that undergraduate medical education be restructured into a core course to be completed by all students and selected clinical options which would occupy about a third of the teaching time of the course.

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[5] Department of Health. Report of the Inquiry into London's health services, medical education and research. 1992.

[6] The GMC education Committee's informal discussion document on undergraduate medical education - unpublished, but circulated to medical schools (1991).

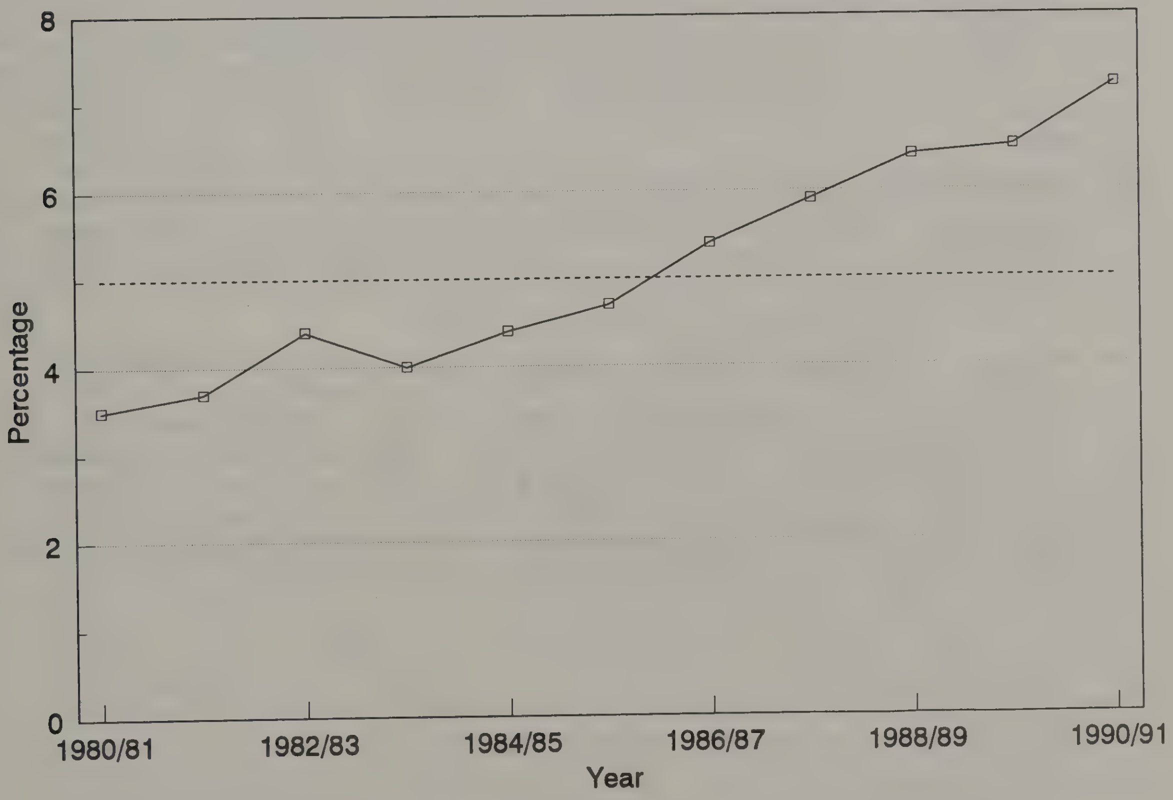
10.14 We have not attempted to quantify the impact of these changes in this report. We will return to this issue once the GMC's recommendations are known. Since a number of medical schools are already near the GMC model, it should be possible to implement the new curriculum without affecting the capacity or steady-state costs of the system.

10.15 Students' exposure to particular specialties at an early stage in their training may influence their aspirations for the future and the take-up of different curriculum options in the future should be reviewed with this in mind.

OVERSEAS STUDENTS

10.16 A quota of five percent of the total medical school intake is currently allocated to overseas students, although percentage allocations to individual medical schools vary.

FIGURE 10.3 **OVERSEAS STUDENTS AS A PERCENTAGE OF MEDICAL SCHOOL INTAKE (United Kingdom)**



Source: Universities' Funding Council 1992

10.17 As can be seen from figure 10.3, individual medical schools have exceeded their quotas in recent years and numbers of overseas students have exceeded five percent of total intake. This effect has been most pronounced in Scotland, where in 1990/91, twelve percent of the intake was from overseas[7]. Details of intakes in the 1980s are at appendix 7D.

10.18 We recognise that universities and medical schools want to increase their intake of overseas students and that fees received from these students are a valuable source of income. These students make an important contribution to the character of academic institutions and often prove to be high academic achievers. It is important to forge cultural links with developing countries, with trained doctors moving back to fill key posts in their own countries. These doctors should return with goodwill towards British medicine and medical products produced in this country.

10.19 The balance between home and overseas students has implications for the future supply of doctors. On completion of their PRHO year, overseas students who do not have the right to settled status in the UK are subject to the same immigration regulations that affect overseas doctors. Consequently, an overseas student is less likely to pursue a medical career in the UK than a home student. We have been unable to ascertain exactly how many overseas students remain in the UK but we hope to return to this theme in a later report. ACMMPII made an assumption that 50% of the overseas students pursued a career in the UK and we have adopted this assumption in our modelling in Chapter 13.

10.20 We have assessed the effect of different balances between home and overseas students and illustrated the results in appendix 7F. It is important that an increase in the number of overseas students does not unacceptably reduce the number of home students.

10.21 Taking into account our recommendation in chapter 15 on the total required medical school intake, we therefore recommend that a ceiling is set for overseas students at around **340**. This corresponds to approximately **7.5** percent of the total medical school intake we propose. It will be for the HEFCs to determine a revised quota for each university and monitor compliance.

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[7] Table 7E, appendix 7 gives the home and overseas components of the global intake to UK medical schools in the 1980's.

11 RESOURCES

INTRODUCTION

11.1 Included in MMSAC's terms of reference is the need to consider the future supply of medical manpower in the light of "resource assumptions" provided by the Secretary of State. In view of the uncertainty surrounding any projection, let alone one encompassing a twenty year period we have considered the information provided by the Department of Health on past trends and based our work on the assumption that these trends will broadly continue. This chapter sets out the background to this assumption.

11.2 As we have already noted, medical manpower and medical education do not operate in a free market. Resources for the education, training and employment of doctors are provided from the public purse and will inevitably be finite.

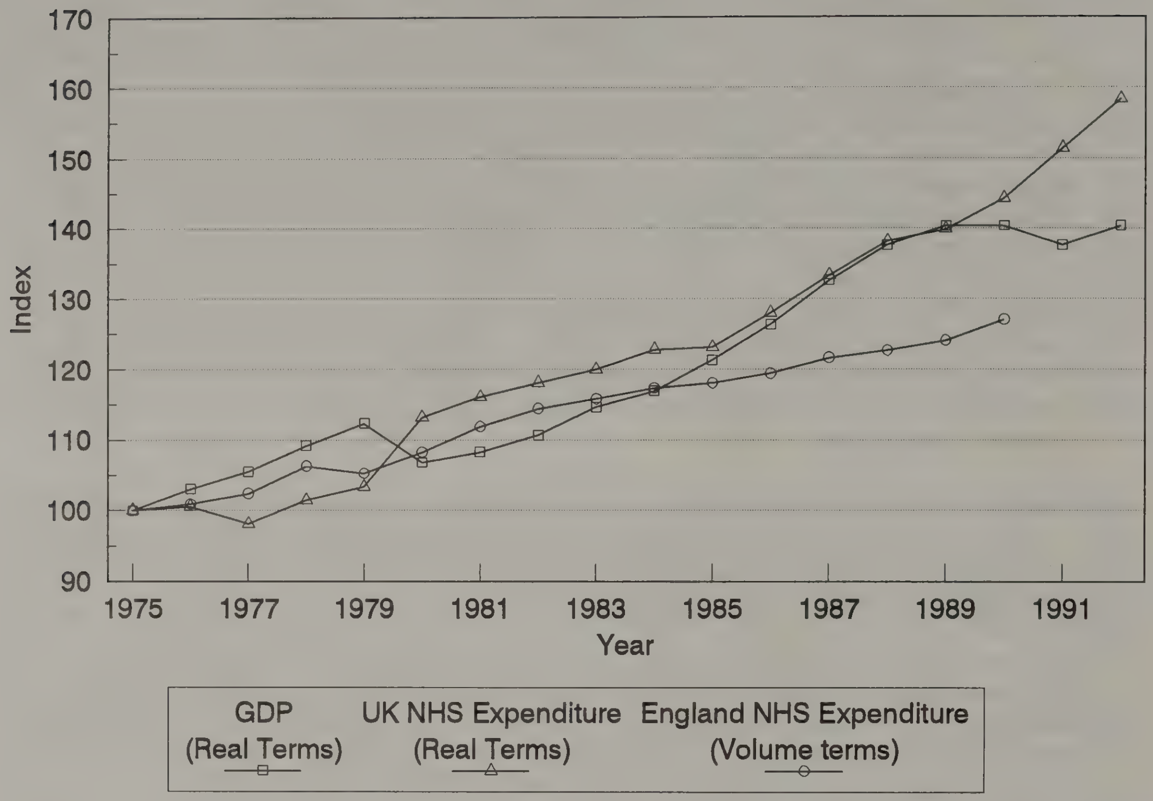
11.3 The link between resources and manpower is not clear cut. In both the hospital and the general medical sectors, resources are allocated to the NHS to supply **services**, not to employ specific numbers of doctors.

11.4 We recognise the need for careful consideration of the affordability of any proposed changes in the medical workforce, and we will commission research (discussed in Chapter 14 below) in order to clarify how many doctors might be demanded by the NHS given certain assumptions about available resources. In the meantime, as a starting point, we consider some evidence about past medical manpower increases. In the following sections, we examine the overall growth of NHS expenditure and trends in the numbers and overall costs associated with doctors in the hospital and general medical sectors, and we then develop some scenarios for possible future growth based on these.

THE GROWTH OF RESOURCES FOR THE HEALTH SERVICE

11.5 We do not of course **know** what NHS spending levels will be over the next 10 or 20 years. For the purposes of this report, we have adopted a working assumption that the future will be broadly in line with the past. Figure 11.1 shows past trends in total expenditure on the health service compared with the trends in Gross Domestic Product (GDP). GDP is expressed in real terms (ie adjusted for the changes in prices in the economy as a whole), whereas, for NHS expenditure, the most relevant way for our purposes is in terms of volume changes (ie adjusted by a specific NHS deflator), since a crucial factor in determining the number of doctors which can be afforded is their pay and that of associated staff, all of which are NHS input costs.

FIGURE 11.1 RELATIVE GROWTHS OF GDP AND NHS EXPENDITURE[1]



Source: Health Departments 1992

11.6 In looking at the affordability of medical manpower, we have considered the Hospital and Community Health Services (HCHS) separately from the General Medical Services (GMS), since the two sectors have exhibited different past trends.

IDENTIFICATION OF HCHS COSTS

11.7 The number of hospital doctors which can be afforded within an overall budget will depend on their cost. There are at least two different ways of recognising the cost of a doctor:

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[1] The differences between UK expenditure (real terms) and England expenditure (volume terms) are primarily the result of the application of different deflators.

individual salary cost plus on costs; and

personal remuneration plus the cost of all the other supporting resources.

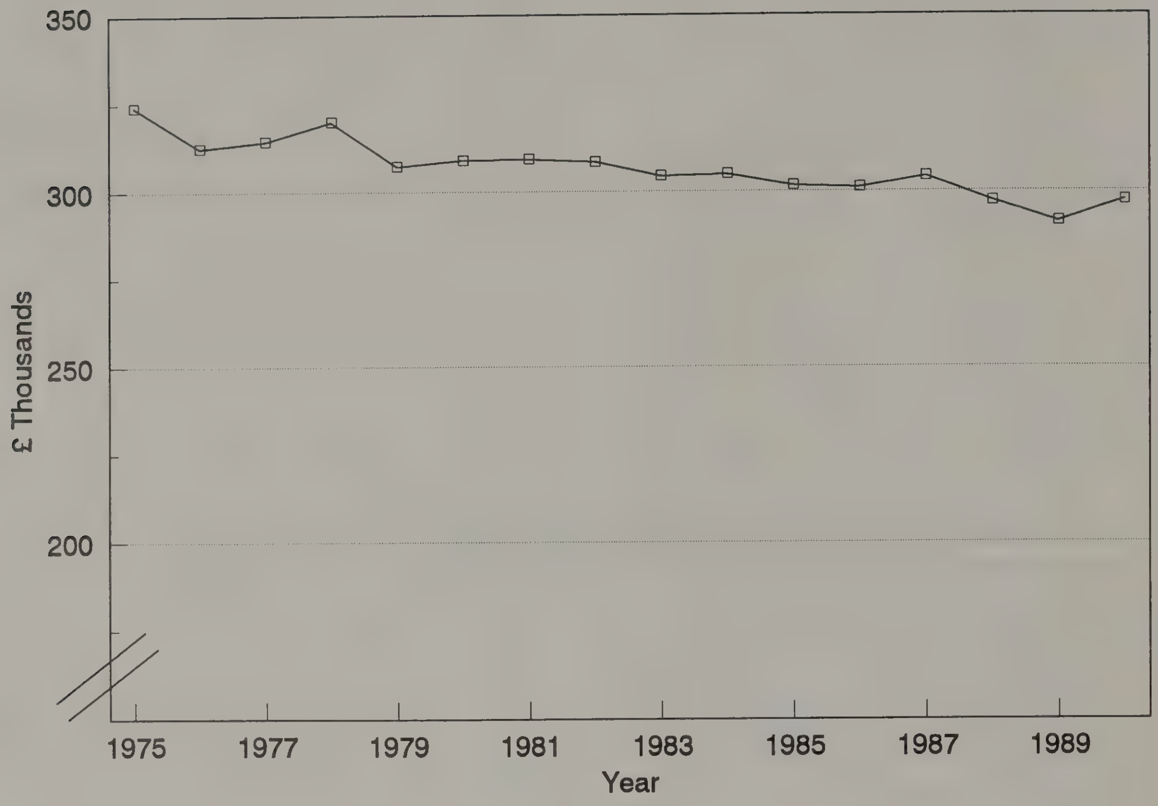
Costs of training and recruitment are additional, and are considered at paragraph 11.29.

11.8 The demand for doctors as individual professionals is derived from the demand for services. The production of health services requires other inputs, such as nurses, supplies and equipment, in addition to doctors. So long as the various inputs are required in fairly fixed proportions then an increase in the demand for services (or volume of NHS expenditure) will lead to an equal proportionate increase in the demand for doctors. Any changes in skill-mix would affect the relative demand for doctors. However, as shown in Chapter 3, there is very little evidence about likely future trends in skill-mix, and until the results of research in this field are available it seems reasonable to assume that the increase in the number of doctors the HCHS wishes to employ will rise in proportion to the rate of growth in inputs generally.

11.9 Doctors are a key resource in the NHS. As well as being indispensable professionals in their own right, they are managers or orchestrators of whole clinical teams and their associated resources; they have the power to refer, generating work for other doctors and other clinical teams; and sometimes they are innovators of completely new approaches to medical care. This means that doctors can be thought of as carrying with them a whole block of associated resources and costs. An additional doctor may require an additional block of such resources (ie marginal costs) if he or she is to make the same productive contribution as the average doctor does now.

11.10 Identifying and costing such a block of resources is a fairly arbitrary matter, particularly since the working practices of individual doctors are likely to be influenced by their access to junior staff and equipment, which in turn will be affected by funding levels. One simple way to proceed is to divide, say, total HCHS expenditure by total hospital doctors. Figure 11.2 suggests that cost per doctor estimated in this manner has fallen from just above to just below £300,000 over the past 15 years. This, of course is an average rather than a marginal cost, but its relative constancy and the arguments in 11.8 indicate that it may be a reasonable substitute for a marginal cost at present. Trends for Great Britain are broadly similar to those in figure 11.2; for technical reasons we have used English data to illustrate them.

FIGURE 11.2 HCHS EXPENDITURE PER DOCTOR (England)
cash adjusted to 1990-91 prices by HCHS deflator



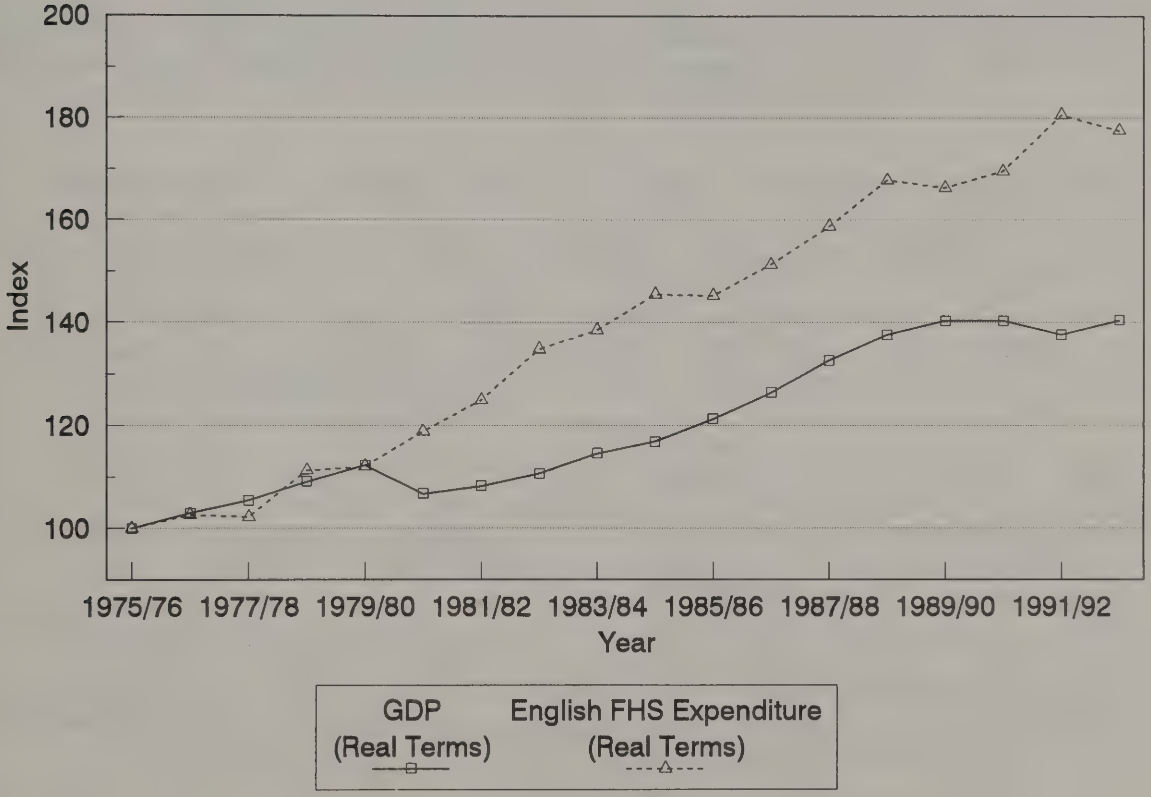
Source: Department of Health 1992

11.11 The analysis of associated costs is normally focused on career level posts. However, the Career Simulation Model (described in Chapter 13 and Appendix 5) is concerned with staff numbers throughout the grade structure of the medical workforce. Current pressures (identified in Chapter 6) are likely to lead to changes in the proportion of junior doctors to consultants, so we deal instead with the total number of hospital and community health doctors. A more detailed breakdown (e.g. by grade) of the associated costs is not possible at present, but the outcome of the research into the affordability of medical manpower (see Chapter 14) should allow some progress to be made in this direction in future years.

COSTS IN THE GENERAL MEDICAL SERVICES (GMS)

11.12 The GMS is funded through the Family Health Service Authorities (FHSAs)[3]. Unlike the HCHS the GMS is not, in the main, cash limited. FHS expenditure is made up of several different items, which makes it difficult to present in volume terms. In real terms (i.e. using the GDP deflator), it has grown at 3.7% p.a. over the last 20 years[4], (Fig. 11.3) whereas total NHS spending has grown at 3.2% p.a. in real terms.

FIGURE 11.3: RELATIVE GROWTH OF GDP AND FHS EXPENDITURE



Source: Health Departments 1992

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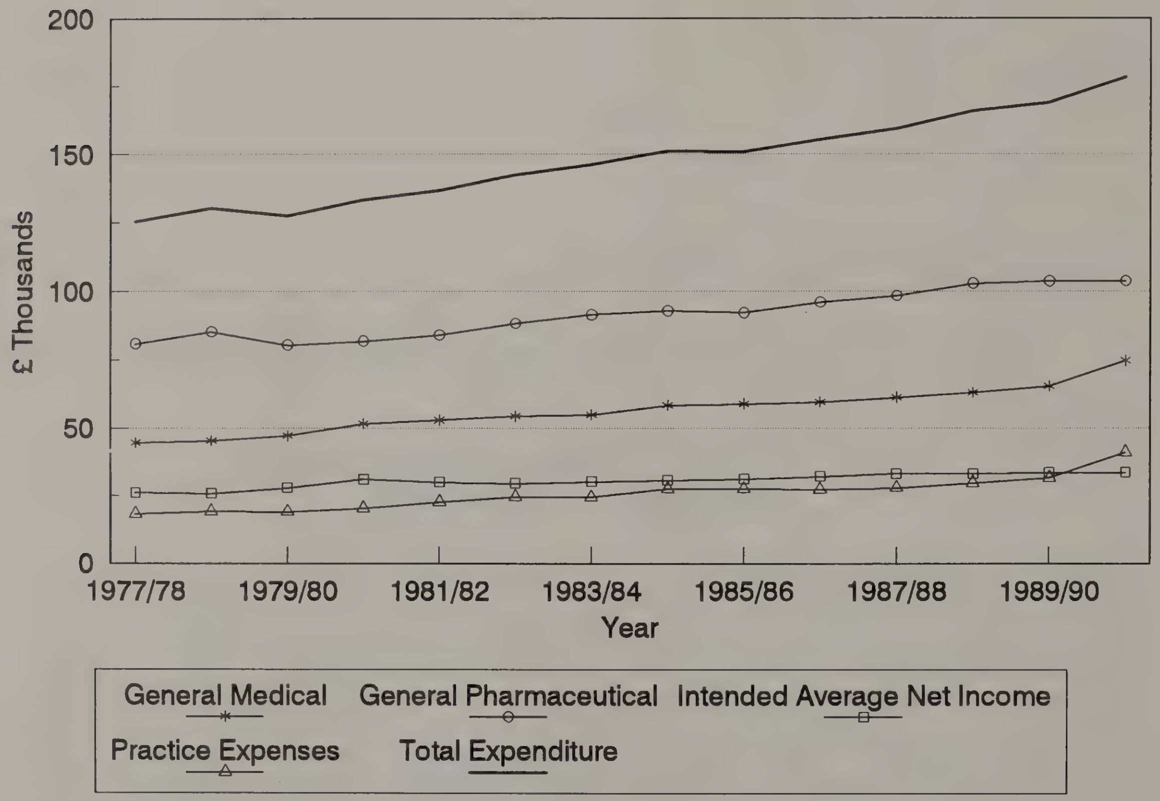
[3] In Scotland the function of the FHSA in England is undertaken by the Primary Care Division of each Health Board.

[4] All growth figures in this chapter are underlying trends, derived from logarithmic regression.

11.13 The components of FHS expenditure have shown rather different rates of growth, so we have considered a limited breakdown of this expenditure. We have taken GMS expenditure to be general medical expenditure and general pharmaceutical expenditure. This total, which currently represents around 80% of total FHS expenditure, has also increased rapidly over the past 15 years.

11.14 General medical expenditure is the gross payment to GP unrestricted principals. About 60% of this is capitation-based, the remainder being made up of a basic practice allowance, allowances for particular types of practice, individual allowances (e.g. for training) and fees for specific items of service. Thus the bulk of this expenditure is determined, in any one year, primarily by the demographics of the population rather than the number of GPs.

FIGURE 11.4: COMPONENTS OF GMS EXPENDITURE PER DOCTOR (Great Britain) adjusted to 1990-91 prices by GDP deflator



Source: Department of Health 1992

11.15 There is, however, a balancing mechanism, in that the overall fee structure is adjusted so that the net remuneration of GPs on average is at the level recommended each year by the Doctors and Dentist Remuneration Board (DDRB). This "intended average net income" (IANI) has shown an average increase of 1.3% in real terms p.a. since 1975. On this breakdown, the other component of general medical expenditure is the reimbursement of general practice expenses, and these have been increasing rapidly. In terms of cost per unrestricted principal, general medical expenditure has increased at 3.5% p.a., with the practice expenses component increasing at 5.3% p.a. (Figure 11.4).

11.16 General pharmaceutical expenditure is also determined to a large extent by GPs. This again has shown a substantial increase over the last 15 years, with cost per GP having increased at 2.2% p.a. in real terms (Figure 11.4). The main factor here is probably the increased cost of drugs, since the average number of prescriptions per GP has shown no significant trend over this period.

THE NUMBER OF DOCTORS WHICH HAS BEEN AFFORDED IN THE PAST

11.17 We have seen that we would expect the number of HCHS doctors on certain assumptions to tend to increase in proportion to the volume of HCHS expenditure. In fact, Figure 11.5 suggests that past growth in the number of doctors has been slightly faster than past growth in the volume of HCHS resources.[5]

11.18 The number of GPs has expanded at a similar rate (1.6% p.a.) while GMS expenditure has increased slightly faster than HCHS expenditure. Growth in the GMS is, in the first instance, determined largely by the decisions of existing GPs on whether or not to take on additional partners. This in turn will be influenced by the incentive structure built into GPs' remuneration and by GPs' perceptions of changes in workload. The net result is that GP manpower tends to grow broadly in line with activity in the HCHS but there is no automatic linkage.

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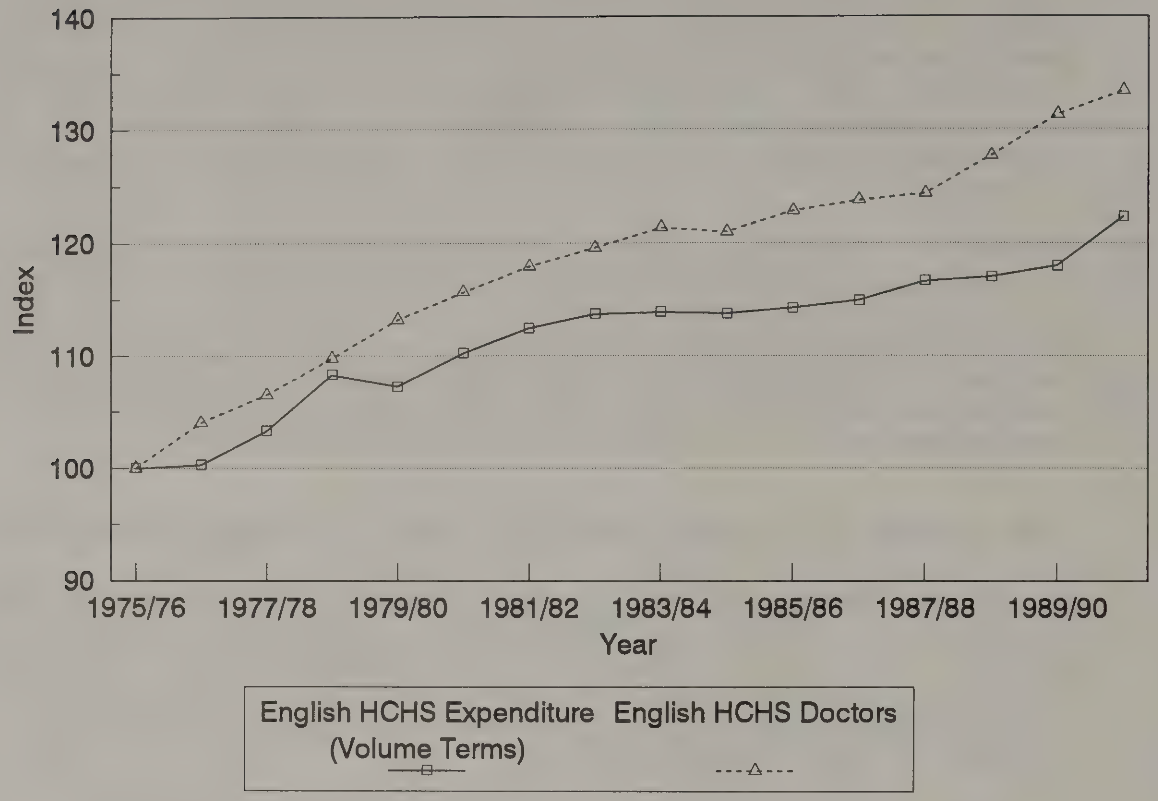
[5] Numbers of HCHS doctors grew at an average rate of 1.7% p.a. compared with an average rate of growth of the volume of HCHS resources of 1.2% p.a. between 1975 and 1990.

FIGURE 11.5: RELATIVE GROWTH OF HCHS EXPENDITURE AND NUMBERS OF DOCTORS (England)



Source: Department of Health 1992

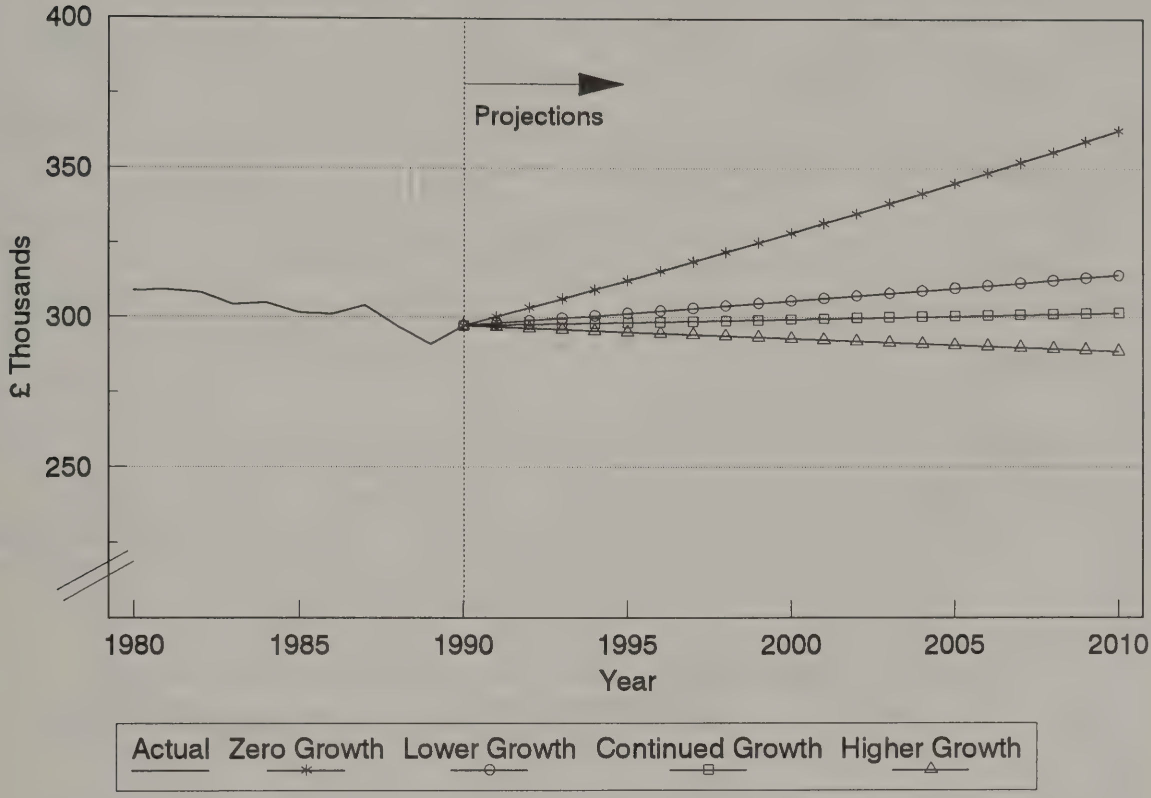
THE NUMBER OF DOCTORS WHICH MIGHT BE AFFORDED IN THE FUTURE

Baseline Scenarios: HCHS

11.19 For the HCHS, a starting point, or "baseline scenario" for considering the future, could be the projections of the past rate of growth of the volume of expenditure and the past rate of growth of HCHS doctors themselves.

11.20 It is important to note that in these projections the capacity of the HCHS to absorb the effect of future changes in demography, medical technology, the perceived need for health care, the role of doctors in the HCHS, and the cost of doctors, to a similar extent as in the past, depends upon future trends in those areas being broadly consistent with those in past years.

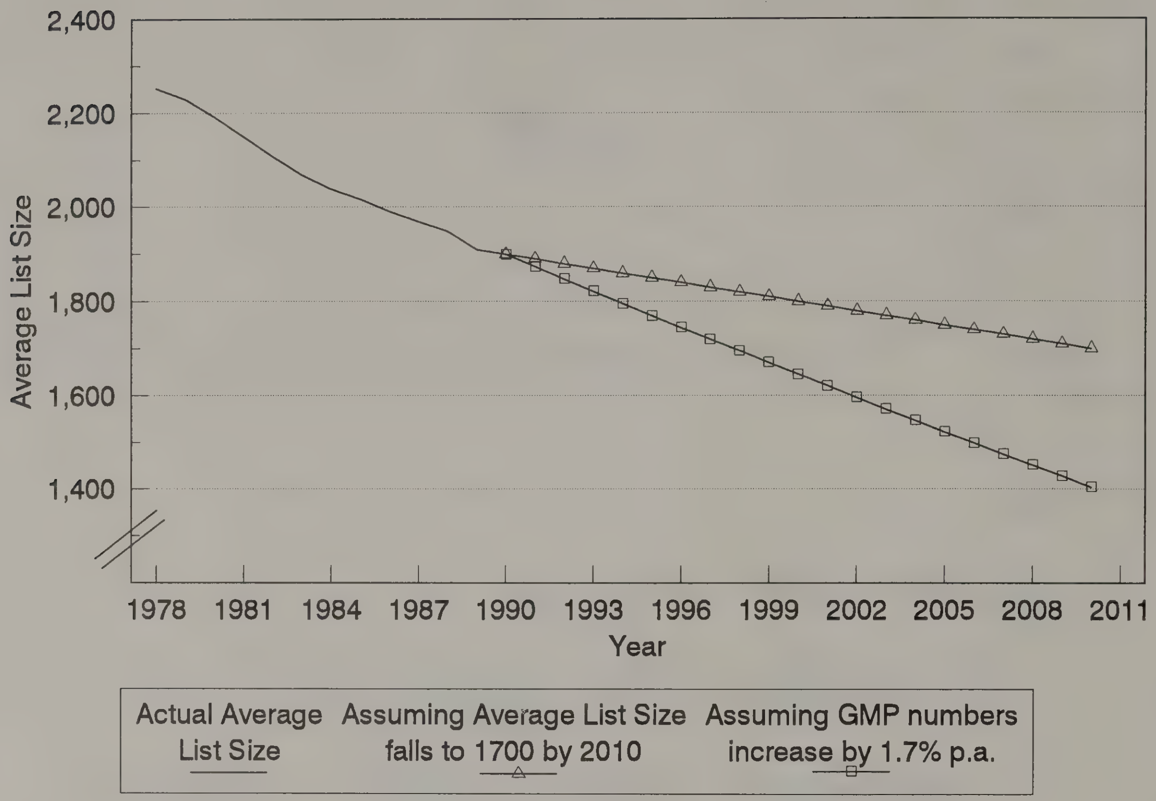
Figure 11.6: **HCHS EXPENDITURE PER DOCTOR - ACTUAL AND PROJECTED (England)** Cash adjusted to 1990-91 prices by HCHS deflator, assuming 1.2% growth p.a.



Source: Department of Health 1992

11.21 Figure 11.6 shows the effect on the wider cost per doctor of these projected increases: volume growth of resources is assumed to be 1.2% p.a. and numbers of doctors are assumed to grow at the four rates presented in the following chapter (tables 12.1 to 12.4). Clearly, the zero growth rate is affordable on the resource assumptions we have adopted. The lower and continued growth projections also appear to be affordable but it should be noted that they assume an increased proportion of consultants which might be expected, other things being equal, to increase the cost per doctor. If doctor numbers grow more rapidly than this then the cost per doctor must fall further. This suggests that doctors' working practices would need to change under such a scenario.

FIGURE 11.7: PROJECTIONS OF LIST SIZE (Great Britain)

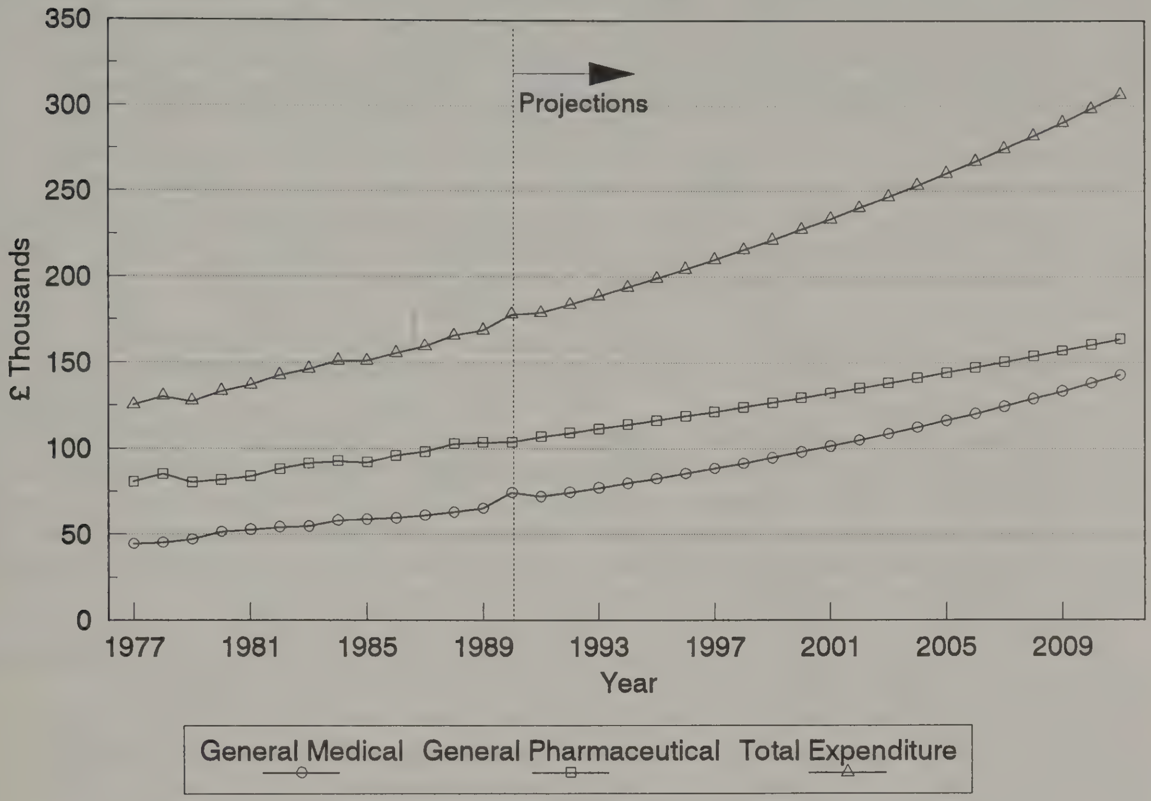


Source: Health Departments 1992

Baseline Scenarios: GMS

11.22 For baseline projections of GP numbers, we have used projections based on average list sizes in the United Kingdom rather than simply following the current trend. A complicating factor is that average list sizes have been consistently 5.8% higher than the population per GP unrestricted principal, (due to some obsolete and duplicate registrations), and our estimates of GP numbers based on population projections have been increased by this amount. Figure 11.7 shows the assumptions in more detail: in recent years the rate of increase in GP numbers has been 1.7% p.a., whereas a reduction in list size to 1700 by 2010 would require GP numbers to grow at only 0.8% p.a., based on the most recent (1989-based) population projections.

FIGURE 11.8: PROJECTIONS OF UNIT COSTS IN THE GENERAL MEDICAL SERVICES (Great Britain)



Source: Department of Health 1992

11.23 If it is assumed that the components of general medical expenditure continue to increase at their historic rates, then we would expect the unit costs shown in Figure 11.8. Even allowing for a slower growth of GP numbers implied by the assumed reduction in list size to 1700, the cost of the GMS in Great Britain is likely to increase substantially. Such a growth is consistent with a volume growth of about 1.2% in the hospital sector provided the long term trend in growth of total NHS resources is maintained.

11.24 Funding of the HCHS and the GMS are interdependent in that both are financed chiefly from the same public expenditure 'pot' and increased funds which are provided for one cannot be available for the other. Moreover GPs act as "gatekeepers" to the hospital sector through referrals. As more GPs become fundholders, it may become harder to distinguish between hospital and general medical sector activity in the traditional way. Nevertheless, for the purposes of this report we have assumed that the balance of activity and funding in the two sectors remains more or less in line with recent trends.

ALTERNATIVE SCENARIOS

11.25 It is essential to consider whether future trends in the demand for doctors might be different from past trends: that is whether more plausible demand scenarios than the baseline scenario can be identified. The most important reason for considering an alternative scenario (or scenarios) is the recent reform of the NHS. Even if the overall growth of resources remains unchanged, the separation of HCHS purchasers and providers and the autonomy given to NHS trusts both in matters of recruitment and remuneration of some career grade doctors could introduce new influences on the demand for doctors.

11.26 In Chapter 4, we consider some factors which might lead to increases, or decreases, in numbers of doctors from the present level. We have seen that the baseline scenario, described above, already takes account of some of these factors (such as demographic trends and advances in medical technology) in whole or in part. However, some of the factors in the list appear to stem mainly from the recent NHS reforms. New factors which may lead to pressure for more doctors include:

> the move from a consultant-led to a consultant-based service;
>
> an increased role for consultants in management;
>
> increased medical audit; and
>
> a probable greater stress on quality as opposed to quantity, arising from emphasis on purchasing services, the Patient's Charters and other changes.

New factors which may lead to pressure for fewer doctors include:

> possible accelerated changes in skill-mix leading to substitution of less skilled staff for doctors;
>
> possible accelerated improvements in medical productivity consequent upon the reforms.
>
> possible future change in the relative remuneration of doctors. The freedom granted to trusts in this matter combined with the monopoly power of the medical profession may make it prudent to consider the eventuality of an increase in the relative pay of hospital doctors.

11.27 In the earlier Chapters, we have primarily considered the effect of these factors on the need for doctors, but it is clear that most of them will also influence, or be influenced by, the cost associated with doctors, particularly in the hospital sector. These cost elements are quite uncertain at present, and we anticipate that these factors will be the principal focus of our research into the affordability of medical manpower (see Chapter 14). For the same reason, the analysis of costs presented above has concentrated on historic trends to ensure that the assumptions which form the basis of the modelling are at least likely to be affordable if present trends continue.

COSTS OF EDUCATION

11.28 In addition to the service costs outlined above, the costs of expanding medical school intake are significant:

Recurrent Costs

11.28.1 Unit funding through UFC grant, tuition fees and student support for undergraduate medical students is around £75,000 over five years, based on 1992/93 rates of funding. NHS funding for service support of teaching and research through the Service Increment for Teaching and Research (SIFTR) is currently some £105,000 per student over the three clinical years.

11.28.2 Taken together, Department for Education (DFE) and NHS non-capital funding per medical student is some £180,000 in total over five years. Excluding research funding this falls to £130,000. These figures are derived by dividing total current funding for medicine by total student numbers: they do not represent the actual cost of taking on additional students, on which no precise data is available. Since fixed costs are a significant part of the costs of medical education, it should be possible to take on additional students at lower levels of funding than the current average. We have recommended in Chapter 15 that part of the costs of expansion should be met by funding students at marginal cost below current average funding.

Capital Costs

11.28.3 Growth in medical student numbers beyond the level of spare capacity identified in paragraph 10.8 would require the building of a new medical school or significant capital costs on adapting or extending the premises of existing schools. These would involve major costs compared with the HEFCs' limited capital budget. We consider this to be unrealistic in present circumstances.

UNCERTAINTY

11.29 In presenting this analysis of historical trends in costs and funding, we have given only central estimates. The reason for this is that numbers of doctors and other clinical staff, elements of cost, and overall funding are all inter-related in a complex and changing way. We consider that it is best to approach this issue by setting up research (outlined in chapter 14) which should both clarify the relationships that exist and give some indication of how these are beginning to change as a result of the operation of the internal market.

12 SUMMARY OF DEMAND PROJECTIONS

INTRODUCTION

12.1 In the preceding chapter we have outlined our assumptions on future levels of resources available to pay for Health Service doctors. In the light of this, and of earlier chapters on the need for expansion, it is possible to form projections of future demand (ie of future numbers of posts which doctors will be required to fill). Assessments of future demand are the "targets" which medical manpower policy must aim to meet.

12.2 For GPs, our long-term assessment is that there is likely to be a reduction in average list sizes to 1,700 in Great Britain. Taking account of expected population changes up to the year 2010, this would require a 17% increase in the number of GPs; on average, an increase of 0.8% each year over twenty years. We have assumed this rate of increase will apply across the whole of the UK.

12.3 The projection of future demand for HCHS doctors is based on assumed growth in resources and changes in grade mix. We have assumed that the underlying trend in HCHS resources will be annual growth of 1.2%. Our baseline scenario reflects this trend. However, as we expect future increases to be concentrated in the consultant grade, without proportionate increases in doctors in training, it is not altogether clear what rate of expansion of doctor numbers the assumed HCHS resource growth would finance. In other words, it is impossible to formulate precise resource-driven demand projections, until we have better understanding of the costs of medical staffing increases. In forming our "continued HCHS growth" projection, we have assumed that continued resource growth of 1.2% per annum would allow consultant growth in the region of 2.5%, in whole-time equivalent terms, provided there was very limited growth in numbers of doctors in training. This would equate to an overall growth of about 0.9% per annum in whole-time equivalent HCHS doctors. However, in view of the considerable uncertainty in both future resource growth and future consultant costs, we have also included "higher" and "lower" consultant growth variants.

DEMAND PROJECTIONS

12.4 We set out below four illustrative demand projections. The first of these envisages zero growth in HCHS medical manpower. The others envisage sustained growth in numbers of consultants, as set out in paragraph 12.7 below: the "**continued HCHS growth**" projection is in line with our central assumptions about growth in resources (paragraph 12.3); the "**higher**" and "**lower**" projections illustrate the result of varying the consultant growth assumption by half a percentage point per annum in either direction.

12.5 The four growth projections all assume that the number of consultants will grow whilst the whole-time equivalent number in training grades remains static. Such changes would be likely to lower the costs associated with each consultant. There would also be implications for the length of training periods, which are reflected in our supply projections.

12.6 We have assumed that, in future, more HCHS doctors will work part-time, so that an increasing number of doctors will be required to maintain the same whole-time equivalent level. Our projections allow for this gap to widen at 0.2% per annum in all HCHS grades, i.e. they envisage 0.2% per annum consultant growth on top of the specified whole-time equivalent growth, and overall growth of 0.2% per annum in the other HCHS grades.

12.7 A summary of the **alternative demand assumptions** is as follows:

Expansion of whole-time equivalent HCHS doctors:

Consultants 0% per annum (zero growth)
or 2.0% per annum (lower growth)
or 2.5% per annum (continued growth)
or 3.0% per annum (higher growth)

All other HCHS grades 0%

Expansion of total number of doctors:

In the HCHS, to allow for increased part-time working, overall demand for qualified doctors is assumed to rise by an additional 0.2% per annum **in every grade**, on top of the whole-time equivalent increases above. (For example: in zero HCHS growth projections, HCHS numbers in all grades are required to grow at 0.2% p.a.)

For GPs, our demand projection envisages 17% growth over 20 years in the **numbers** of GP principals.

12.8 The total numbers (not whole-time equivalents) implied by these levels of growth are shown in Tables 12.1 - 12.4. It is worth noting that the trends in the overall numbers for each of the four growth projections reflect the trfends in consultant numbers. The trends for the other categories are the same for each of the four projections.

TABLE 12.1 ZERO HCHS GROWTH PROJECTION: UK DOCTORS

	1990	2000	2010
Consultants	20,300	20,700	21,100
Other hosp career grades	4,200	4,300	4,400
GMS	33,000	35,700	38,700
CHS	4,000	4,000	4,100
Training grades	34,900	35,600	36,400
Total	96,400	100,400	104,700

TABLE 12.2 LOWER HCHS GROWTH PROJECTION: UK DOCTORS

	1990	2000	2010
Consultants	20,300	25,300	31,400
Other hosp career grades	4,200	4,300	4,400
GMS	33,000	35,700	38,700
CHS	4,000	4,000	4,100
Training grades	34,900	35,600	36,400
Total	96,400	103,000	115,000

TABLE 12.3 CONTINUED HCHS GROWTH PROJECTION: UK DOCTORS

	1990	2000	2010
Consultants	20,300	26,500	34,600
Other hosp career grades	4,200	4,300	4,400
GMS	33,000	35,700	38,700
CHS	4,000	4,000	4,100
Training grades	34,900	35,600	36,400
Total	96,400	106,200	118,200

TABLE 12.4 HIGHER HCHS GROWTH PROJECTION: UK DOCTORS

	1990	2000	2010
Consultants	20,300	27,800	38,200
Other hosp career grades	4,200	4,300	4,400
GMS	33,000	35,700	38,700
CHS	4,000	4,000	4,100
Training grades	34,900	35,600	36,400
Total	96,400	107,500	121,700

12.9 In terms of resource growth, the "zero HCHS growth" projection would be achievable even if there were no future increases in funding for the HCHS. Subject to our assumption about the rate of consultant growth which can be afforded by a given level of resource growth, the "continued HCHS growth" projection would be achievable if future HCHS resources continued to grow at a similar rate to past years. The "higher HCHS growth" projection would require either a higher rate of overall HCHS resource growth or continued significant increases in the share of HCHS resources spent on doctors; conversely the "lower HCHS growth" projection would be consistent with a deceleration in these trends.

12.10 Until the year 2000, the overall rate of increase in doctor numbers required by our "continued growth" demand projection is similar to that envisaged by the demand projection of ACMMPII. However, ACMMPII envisaged a deceleration in the rate of increase of GP numbers in the early part of the 21st century, which we do not assume. This is one reason why, compared with our predecessor Committee, our projections envisage more severe shortfalls of supply in the long-term.

13 MODELLING THE FUTURE SUPPLY OF DOCTORS

THE FUTURE SUPPLY OF DOCTORS

13.1 In earlier chapters we have considered the future demand for medical manpower, ie both the likely needs of the Health Service and the level of resource which may be available. In this chapter we consider whether the future supply of doctors is likely to be sufficient to meet the expected level of demand. Six projections of supply have been produced, and these are compared with the four demand projections of Chapter 12.

13.2 Projections of the balance between supply and demand are inevitably subject to a great deal of uncertainty. As we have seen, the demand for doctors will depend, among other things, on the funds available to the NHS in future and on decisions about how those funds should be spent. The future supply also depends on several factors, including:

the level of intake to medical schools;

leaving rates; the proportion of each annual medical school intake who do not continue for a full career as a doctor in the UK Public Sector;

immigration of doctors from the EC and other countries;

trends in retirement ages and part-time working; and

more tenuously, any future changes in career structure.

13.3 Each of these influences may, of course, vary over time, and hence each of our projections represents merely a judgement of possible outcomes, calculated in the light of present trends and of foreseeable future developments. Nevertheless, it is necessary to look many years ahead, as the levels of medical school intake in the 1990s will affect the supply of doctors until at least the year 2040. Our projections, based on data for 1990, look forward 20 years, ie until the year 2010. They cover the UK Main Public Sector (MPS) which consists of doctors in the Hospital and Community Health Service, General Medical and Ophthalmic Practitioners, and medically qualified staff in the Universities.

THE CAREER SIMULATION MODEL

13.4 Our projections of the supply of doctors have been calculated using a forecasting model known as the "Career Simulation Model" (CSM). This model has been developed for use in place of the more complex Medium Term Model used by

ACMMPII. A detailed description of the Career Simulation Model is included at Appendix 5.

13.5 One of the most critical factors affecting supply is the number of doctors who leave the MPS prematurely (ie before retirement). Our main sources of data for this have been the Department of Health's Medical Manpower Record (MMR - described in Appendix 5), which measures the flows of doctors in and out of the system between consecutive years; and the cohort studies of medical graduates conducted by Professor J Parkhouse. However, the MMR is subject to distortion by inaccuracy in any of its sources, and appears to yield implausibly high leaving rates for junior doctors. We have therefore checked the results of the MMR against the Parkhouse studies, which identified what proportion of medical graduates in 1974 and 1977 were not working in the MPS 5 years and 8 years after qualifying. The central supply forecast uses leaving rates calibrated to the Parkhouse results. However, variant supply projections have been produced to show the effect of assuming higher or lower premature leaving rates.

13.6 ACCMP II also used leaving rates, for the first five years after qualification, which were consistent with the Parkhouse studies. However, after the 5 year point our assumed leaving rates are generally higher than those used by ACMMPII, not least because we have specifically assumed a gradual reduction in typical retirement ages. Consequently our central variant envisages slower growth in home doctors than did our predecessor Committee's central variant. The growth rate implied by ACMMPII's main supply projection was nearer to, though not as high as, our Variant B (lower leaving rates).

PROJECTIONS OF SUPPLY

13.7 Several variant supply projections have been produced. The assumptions for the **central supply prcjection,** were as follows:

Home & EC doctors:

premature leaving and rejoining rates to remain at the levels estimated from the Parkhouse studies and, secondarily, from the MMR.

retirements earlier than at present: by one year during 1990-2000, by two years during 2000-2010.

promotion rates slightly higher than at present, so that overall time in training grades is reduced by about 1 year.

intake to UK medical schools increased by 250 students from 1993 onwards. Allowing for those who fail to complete the course or do not take up PRHO posts, this implies an additional 229 new PRHOs each year from 1998.

intake to medical school divided equally between male and female students.

Overseas doctors:

numbers of post-1985 overseas doctors remain constant;

pre-1985 overseas doctors subject to same leaving rates as home/EC doctors, but with no new joiners and a diminishing number of re-joiners.

13.8 The other **variant projections** use the same assumptions as the central projection except as detailed below:

Variant A: no increase in medical school intakes.

Variant B: one fifth lower leaving rates for doctors in first 25 years after qualifying

Variant C: one fifth higher leaving rates for doctors in first 25 years after qualifying

Variant D: promotion rates for Registrars and Senior Registrars increased so that average total time in these grades is reduced by a further 3 years across both grades.

Variant E: numbers of post-1985 overseas doctors in training grades continue to increase, reaching a level 50% above present numbers by 1995.

13.9 To contain the number of variants, we have not produced projections showing combinations of these varied assumptions (eg lower leaving rates with no increased medical school intake). However, some idea of the combination of the factors can be gained by interpolating between the variants.

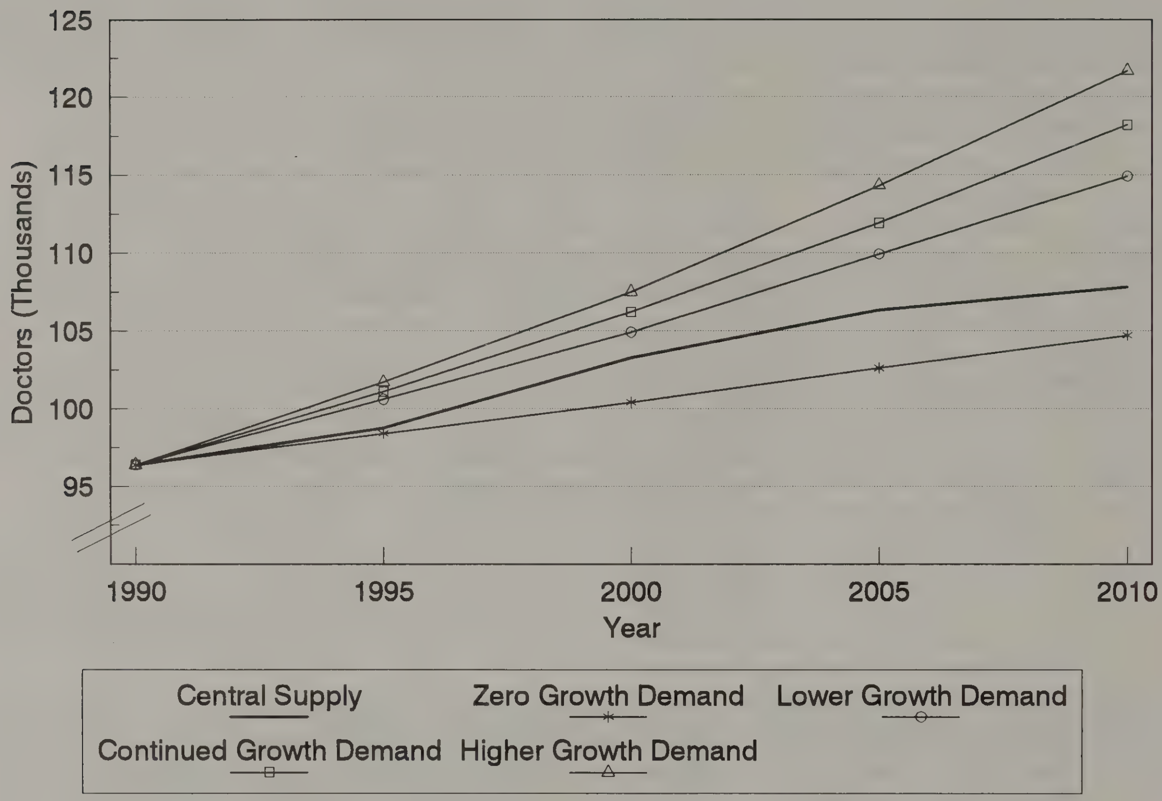
COMPARISON OF SUPPLY PROJECTIONS AND DEMAND PROJECTIONS

13.10 This section highlights the main results and draws conclusions from a comparison of the six supply projections with the four demand projections. Detailed results are shown in Appendix 6.

13.11 The central supply projection and the four demand projections are shown in Figure 13.1. The central supply projection envisages net growth of only 7,000 doctors in the first ten years, and a further 4,500 between 2000 and

2010, despite the assumed expansion in medical school intake. This is above the "zero HCHS growth" demand projection, but below the three projections for growth. Compared to the "continued HCHS growth" demand projection, the central supply variant envisages a shortfall of 3,000 doctors by 2000 and a shortfall of 10,500 by 2010.

FIGURE 13.1: CENTRAL SUPPLY PROJECTION vs ALTERNATIVE DEMAND ASSUMPTIONS[1]



Source: Department of Health

13.12 There are three reasons why the central projection forecasts such slow growth in the total number of doctors over the next 20 years.

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[1] These demand assumptions are shown in more detail at paragraph 12.7.

13.12.1 As discussed above, it assumes leaving rates which imply that 25% of female graduates and 18% of male graduates will have left (or never joined) the MPS during the first five years after graduation; after this point, leaving rates are a little higher than those used by ACMMPII.

13.12.2 During the later years of the projection, retirements of career grade doctors are expected to increase, because of the expected trend towards earlier retirement ages and because of the age structure of the present medical workforce. Though we have not explicitly projected beyond 2010, this effect is likely to continue, and perhaps worsen, after that date, as the expansion generated by the Todd increases to medical school intake ends.

13.12.3 Our central supply projection envisages a reduction of 8,500 in the number of overseas doctors over the 20 year period, which offsets nearly half of the growth expected in numbers of home doctors.

13.13 However, three of the variant supply projections use different assumptions which yield higher figures. If lower premature leaving rates are assumed (Variant B), it would add 3,000 doctors to the total by 2000, and 5,500 to the total by 2010. Faster promotion rates applied in future (Variant D) would not only accelerate the move to a consultant-based service, but could also reduce leaving rates as doctors' promotion prospects improved. This could add 1,000 doctors to the projection for 2000, and 3,000 to the projection for 2010. Also, if the numbers of post-1985 overseas doctors in the system rises to a higher level than currently (Variant E), this could add another 2,500 to the projection in both 2000 and 2010.

13.14 If the factors underlying the three alternative variants B,D and E are combined, the resulting supply projection would be sufficient to exceed the "higher growth" demand variant until the year 2000. However, the rate of growth would become slower in the early years of the 21st century, so that by 2010 supply would have fallen back to a level near the "continued HCHS growth" demand variant.

13.15 Conversely, a lower projection based on higher leaving rates (Variant C) would show supply at the same level as the "zero HCHS growth" projection in 2000, and falling behind it before 2010. However, on current evidence this supply projection seems to us to be the least plausible of the six, being based on leaving rates higher than those implied by the Parkhouse studies or those estimated by our predecessors.

13.16 Variant A shows the effect of not increasing medical school intake. Because the new intake would not become

PRHOs until 1998 at the earliest, this has little effect on the supply of doctors in 2000. However, the growth rate expected in the years 2000-2010 would be even slower if this increase in intake were not made.

13.17 The HCHS growth demand projections all envisage an increase in consultants without a commensurate increase in numbers of doctors in training. To achieve this would require an increase in promotion rates. The central supply projection assumes a slight (1-year) shortening of typical promotion times, but this is not as great as that implied by the demand projections. Because of this, the shortfalls in the central supply variant are found only in the career grades. However, Variant D over-compensates for this, by assuming a shortening in hospital training times greater than that necessary to match the demand projections. As a result, Variant D projects shortfalls in the training grades, and oversupply (in the year 2000) in the consultant grade. The implication is that an acceleration in training of this magnitude could only take place if accompanied by changes which allowed an overall reduction in the number of junior doctors.

CONCLUSION

13.18 The results of our preliminary analysis suggest that the supply of doctors will have difficulty in keeping pace with demand in the next 20 years, and particularly during the early part of the 21st century. The size of this future shortfall cannot be predicted, until firmer views are reached on future levels of demand, and more secure information on losses is available. We will monitor these issues closely. However, given the current indications, we believe it is necessary to take certain steps immediately.

13.19 In the period up to the year 2000, an adequate supply may be ensured if leaving rates are kept down. Early moves towards a consultant-based service and more flexible working patterns will help this. The former will also lead to a more desirable balance between career and training grades.

13.20 A more severe supply problem can be expected in the years following 2000, when several factors may combine to increase the numbers retiring or otherwise leaving the MPS. Given the long lead times for new medical school students to become doctors, we judge it necessary to take advantage of the spare capacity in existing UK medical schools, and recommend a modest increase in the intake.

13.21 In view of the importance of realistic projections of both supply and demand, our next chapter considers improvements to the information base which are necessary to make future supply-demand analyses more secure.

14 RESEARCH AND INFORMATION STRATEGY

INTRODUCTION

14.1 We have received a considerable volume of written and oral evidence, much of which is based on opinion (however well founded) rather than substantive research studies. We have also made use of the research which has already been published on a variety of medical manpower issues[1] and appreciate the contribution which those authors have made to our consideration of those issues.

14.2 Information is vital to our task and we will depend on feedback on issues discussed in this report to inform our future work. We therefore request that the Health Departments and the NHS make information on these issues available to enable us to monitor developments. We also consider that the Health Departments need to develop more effective implementation and monitoring strategies, to ensure that the action we have recommended is carried out effectively.

INFORMATION REQUIREMENTS

14.3 This chapter notes the gaps in information on the manpower related issues discussed in this report, and goes on to suggest studies that we would like to see initiated. We have noted in particular the following areas.

14.3.1 There is no formal means of tracking leavers from the NHS, encompassing doctors working outside the National Health Service and those who are not working medically, to examine what happens to them over time.

14.3.2 The financial implication of increasing consultant numbers has not been considered in detail.

14.3.3 Very little research has been done in this country on the "substitution/skill-mix" question as it relates to medical manpower numbers.

14.3.4 The impact of the NHS reforms on manpower has not yet been considered, although these reforms have led to rapid change to the infrastructure in which doctors are working.

14.3.5 There is little information on patterns of early retirement from medicine in the United Kingdom.

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[1] See appendix 4 - we do not quote an exhaustive list of references but Phillips (A review of research 1986-1992, Department of Public Health and Policy, 1992) provides an invaluable summary of recent research on health and social services manpower topics.

14.3.6 Little work has been done to examine the effect on medical manpower of changes in medical care. But, as we have noted elsewhere, this is a difficult area to evaluate.

14.4 Such gaps in information have posed a substantial difficulty for us when forecasting future manpower needs. It is such issues as early retirement and changes in career structure which will dictate whether the supply of manpower meets demand, especially in the short term. Such issues cannot be wholly accommodated by statistical modelling of manpower numbers, which, however sophisticated, needs to be amplified by evidence on social trends.

SUGGESTED RESEARCH

14.5 We have considered how these areas might be approached to provide an effective programme of medical manpower research both within the resources available to the Department, and to stimulate further research elsewhere in the UK. Three main areas emerge as being worthy of immediate consideration.

The Parkhouse Studies

14.6 We have recommended that the Department of Health recommission the studies on doctors' careers which were started by Professor Parkhouse in 1974. This body of work is unique as it has tracked the career paths of UK medical graduates from the years 1974, 1977, 1980 and 1983 at intervals throughout their working lives. It therefore provides information about career patterns within the NHS, and about the numbers of doctors who leave medicine and/or work abroad. It provides an independent check on key results derived from the Medical Manpower Record, adds information on qualified doctors outside the Main Public Sector, and sheds light on the reasons for doctors' career choices.

14.7 This study will provide information on career pathways and achievements, together with detailed information on the movement of doctors in and out of the NHS, and on part-time and flexible working.

Cost Implications of Medical Employment

14.8 We have identified the lack of information on the costs of increasing the number of doctors. We therefore suggest that a study be carried out on the "Affordability of Medical Manpower" with the main objective of projecting resources forward over a twenty year timescale.

14.9 Such a study could examine the cost implications of a range of marginal increases in manpower, taking account of potential developments and changes in the way health services are provided and managed, and establish the strength of links or interactions between overall health expenditure and growth in medical manpower.

14.10 We suggest a timescale of six to nine months would be suitable, to ensure completion in time to inform our next report.

Skill-Mix

14.11 There have been many initiatives in the area of skill-mix, most of which have sought to evaluate the benefits of their projects as far as the participants and patients are concerned. However, studies in this area have not previously been particularly concerned with the effects on medical manpower. The Department of Health may wish to initiate research into possible ways of reducing the current excessive hours worked by junior doctors, eg by employing other staff to undertake routine duties inappropriate for medical staff.

14.12 There should also be further examination of the possible effects of the policy of a shift to primary care which may well generate a number of changes in the way GPs manage their practices. The impact of the introduction of a range of different skill-mixes on manpower requirements in general practice would be of particular interest.

14.13 We feel that the question of research into skill-mixes between different groups of doctors, and between doctors and other health care professionals, and the effect on manpower numbers needs further detailed consideration.

14.14 There are clearly a number of other areas that we might consider appropriate for further research. As MMSAC is a Standing Committee, we will return to them in later reports.

RECOMMENDATION

14.15 We recommend that research be carried out in the following three areas:

doctors' career choices, aspirations and reasons for leaving medicine;

the "affordability" of medical manpower; and

investigations into "skill-mixing" with particular reference to the impact on medical manpower.

15 CONCLUSIONS AND RECOMMENDATIONS

INTRODUCTION

15.1 The Commissions and Committees on medical manpower planning which have preceded ours were each given the remit to provide a single report. Consequently they had to complete their examination of the issues, and to reach a definitive answer, on the basis of the information then available and their best guess about how the future would develop. As a Standing Committee we are more fortunate.

15.2 Our aim in this first year has not been to provide a definitive and comprehensive forecast of the medical manpower requirements of the future. Rather it has been to set current issues in focus whilst recognising the rapidly changing climate in which we work.

15.3 The previous chapters summarise the evidence presented to us. There are a number of important issues which will influence the environment within which we work. We will want to return to them again in future reports to assess their implications. They include:

- the New Deal on junior doctors' hours;
- the possibility of EC legislation leading to further reductions in the hours which trainee doctors can work;
- the arrangements for GP Fundholding which have already led to changes in primary care which in turn will be intensified by the Community Care initiative;
- the Chief Medical Officer's reviews of postgraduate medical training and of the hospital medical career structure;

15.4 We have also been conscious of the major inquiry into London's health services which has been led by Sir Bernard Tomlinson. This must inevitably impact on medical manpower in the Capital and on the teaching and education provided within London's medical schools and hospitals.

15.5 The results of our modelling exercise have indicated the likelihood of a shortage of doctors, both in the shorter term and in the longer term. We recommend action to address short term deficiencies and long term shortages separately.

SHORT TERM SOLUTIONS

15.6 We have identified measures which will help to counteract a possible shortage of doctors over the next 5-10 years. These measures can be taken quickly to discourage doctors from leaving medicine, to enable their continued participation and to make the most effective use of medical school output.

> **15.6.1** We therefore *recommend* that the Department and the NHS give active support to the extension and implementation of initiatives on flexible working; with a view to increasing the overall number of part-time opportunities for doctors at all career levels.
>
> **15.6.2** We *recommend* that the numbers of part-time posts in all training grades are increased. At the same time there should be a recognition that part-time training is of equal quality with that gained on a full time basis.
>
> **15.6.3** We *recommend* that research is undertaken which will quantify the medical manpower effects of skill-mix initiatives.
>
> **15.6.4** We *recommend* that research be undertaken to examine the career patterns of doctors, their reasons for leaving medicine and their future career intentions.
>
> **15.6.5** We await with interest the outcome of the debate on the length and intensity of postgraduate training. We *support* intentions to shorten the training period, and will return to this issue in a later report.

LONGER TERM SOLUTIONS

15.7 For the longer term we have taken account of the arguments for an increase in GP and consultant numbers. In view of our concern about the costs of such an expansion we feel that it is necessary that we have a clear idea of the cost implications of such an increase.

> **15.7.1** We therefore *recommend* that the Department of Health make a study of the affordability of medical manpower increases to inform our future work.

15.8 The increases in medical school places made following the Todd Report will cease to fuel a year-on-year increase in the number of consultants by about the year 2015. If that increase is to continue into the next century, and we believe that it should, action needs to be taken **now** to increase the number of places available at medical school.

15.9 The modelling exercise has indicated that when compounded over time a modest increase in medical school students, together with the measures which will already have been taken to improve retention, should alleviate the predicted shortfall in the supply during the early part of the 21st Century.

> **15.9.1** We therefore *recommend* an increase to the medical school intake of **240** students as soon as practicable. This would result in a revised target figure for UK medical school intake of **4470**.
>
> **15.9.2** We further *recommend* that the HEFCs co-ordinate changes in student numbers resulting from our recommendations and those of the Tomlinson report.

15.10 The UFC have advised us that an expansion of the medical school intake could be afforded at less than the current average level of funding for each additional student.

> **15.10.1** We *recommend* that part of any costs of expansion are met by funding growth at marginal costs as the UFC have indicated.

15.11 Given the level of uncertainty about future trends in medical manpower in the NHS internal market, we have not considered raising student numbers to a level that would necessitate additional capital spending.

15.12 We have referred to the need to reinforce the links between the United Kingdom and other countries and to the contribution made by our universities to the improvement of medical services worldwide.

> **15.12.1** We therefore *recommend* that the number of medical school places reserved for overseas students is increased to around **340** representing approximately **7.5** percent of the total number of students.

APPENDIX 1

MEDICAL MANPOWER STANDING ADVISORY COMMITTEE (MMSAC) CHAIRMAN AND MEMBERS

CHAIRMAN

Professor C Campbell	Vice-Chancellor of the University of Nottingham

MEMBERS

Dr J Ball, CBE	Chairman of the Medical Practices Committee.
Professor D Bartholomew	Professor of Statistics at the London School of Economics; member of the First and Second Advisory Committees for Medical Manpower Planning.
Dr F Caldicott	Dean and President elect of the Royal College of Psychiatrists
Mr D Gentleman	Consultant Neurosurgeon at Dundee Royal Infirmary; member of the General Medical Council.
Professor D K Peters	Regius Professor of Physic at Cambridge University.
Dame Rosemary Rue, DBE	Past President of the BMA and of the Medical Women's Federation. Former Regional General Manager and Regional Medical Officer of Oxford RHA.
Professor D Wedderburn	Senior Research Fellow of the Management School, Imperial College; former Principal of the Royal Holloway and Bedford New College.
Dr R Wilson	Principal Research Fellow at the Institute for Employment Research, Warwick University.

OBSERVERS

Dr H Campbell	Deputy Chief Medical Officer, Department of Health & Social Services, Northern Ireland Office.
Dr C Fleming	Principal Medical Officer, Home and Health Department, Scottish Office.

Dr D Owen	Principal Medical Officer, Medical Manpower and Education, Welsh Office.

DEPARTMENT OF HEALTH

Dr P Bourdillon	Senior Principal Medical Officer, Medical Manpower and Education Division.
Mr S Catling	Assistant Secretary, Medical Manpower and Education Division. (From March 1992.)
Mr N Duncan	Assistant Secretary, Medical Manpower and Education Division. (To April 1992.)
Dr D Ewing	Senior Medical Officer, Medical Manpower and Education Division. (From March 1992.)
Dr P Doyle	Senior Medical Officer, Medical Manpower and Education Division. (To December 1991.)

SECRETARIAT

Mrs G Bellord (Secretary)	Medical Manpower and Education Division.(From April 1992.)
Mrs Y Baxter (Secretary)	Medical Manpower and Education Division. (To March 1992.)
Mr A Rogers	Medical Manpower and Education Division.
Mr W Barron	Health Authority Personnel Statistics Branch. (From May 1992.)
Mr N Adkin	Health Authority Personnel Statistics Branch. (To May 1992.)
Dr P Baldry	Economics and Operational Research Division.
Mr M Markus	Department for Education.

APPENDIX 2

LIST OF BODIES SUBMITTING EVIDENCE TO MMSAC

Bodies marked * presented oral evidence before the Committee
All listed bodies submitted written evidence

Clinical Research Organisations

Association of Clinical Biochemists
Association of Clinical Microbiologists
Medical Research Council

BMA/BDA and Associated Bodies

British Medical Association *
Scottish Council of BMA
BMA Central Manpower Committee
Dr G H Hall - Ex Chair Central Manpower Committee
British Dental Association - Central Committee for Hospital Dental Services
Joint Consultants Committee *
Scottish Joint Consultants Committee

Medical Royal Colleges and Specialist Representatives

Conference of Medical Royal Colleges *
Royal College of Anaesthetists
Royal College of Physicians
Royal College of Psychiatrists
Royal College of Surgeons
Royal College of Obstetricians and Gynaecologists
Royal College of Pathologists
Royal College of Physicians of Edinburgh
Royal College of Physicians and Surgeons of Glasgow
Royal College of Radiologists
Royal College of Surgeons of Edinburgh
Royal College of General Practitioners *
College of Ophthalmologists
Conference of Royal Colleges and Faculties in Scotland
Faculty of Occupational Medicine
Faculty of Public Health Medicine
British Paediatric Association

Medical Education

Scottish Council for Postgraduate Medical Education
Committee of Post-Graduate Medical Deans
Committee of Regional Advisers in General Practice
Committee of Vice Chancellors and Principals *
Standing Committee on Post-Graduate Medical Education
Queen's University, Belfast
University of Nottingham Medical School
Standing Council of Deans of UK Medical Schools and Faculties *
Scottish Committee of the UFC
University Hospital Association

Academic Research Bodies

Conference of Academic Organisations in General Practice
Institute of Manpower Studies, University of Sussex
Medical Care Research Unit, University of Sheffield

Employers Interests

Inter Regional Secretariat
National Association of Health Authorities and Trusts *
NHS Trust Federation
Regional Directors of Public Health
Regional Medical Manpower and Personnel Group
Lambeth, Southwark and Lewisham FHSA

Representatives of Other Health Care Professionals

Royal College of Nursing *
Regional College of Midwives *
Chart. Society of Physiotherapy

Other Bodies

Hospital Consultants and Specialists Association
Joint Planning Advisory Committee
Medical Practices Committee
Medical Women's Federation *
Overseas Doctors Association *
Society of Public Health
Medical Practitioners Union *
British Geriatrics Society
Wigan District Health Authority

APPENDIX 3

GLOSSARY

ACME - ADVISORY COMMITTEE ON MEDICAL ESTABLISHMENTS
ACMMP - ADVISORY COMMITTEE FOR MEDICAL MANPOWER PLANNING
AIDS - ACQUIRED IMMUNE DEFICIENCY SYNDROME
AS - ASSOCIATE SPECIALIST

BDA - BRITISH DENTAL ASSOCIATION
BMA - BRITISH MEDICAL ASSOCIATION

CHS - COMMUNITY HEALTH SERVICE
CME - CONTINUING MEDICAL EDUCATION
CMO - CHIEF MEDICAL OFFICER
CSM - CAREER SIMULATION MODEL

DDRB - DOCTORS AND DENTIST REMUNERATION BOARD
DENI - DEPARTMENT OF EDUCATION NORTHERN IRELAND
DH - DEPARTMENT OF HEALTH
DHA - DISTRICT HEALTH AUTHORITY
DHSS - DEPARTMENT OF HEALTH AND SOCIAL SECURITY
DFE - DEPARTMENT FOR EDUCATION

EC - EUROPEAN COMMUNITY

FHS(A) - FAMILY HEALTH SERVICES (AUTHORITY)

GB - GREAT BRITAIN
GDP - GROSS DOMESTIC PRODUCT
GMC - GENERAL MEDICAL COUNCIL
GMS - GENERAL MEDICAL SERVICES
GMSC - GENERAL MEDICAL SERVICES COMMITTEE (of the BMA)
GP - GENERAL PRACTITIONER

HA - HEALTH AUTHORITIES
HCHS - HOSPITAL AND COMMUNITY HEALTH SERVICES
HEFCE - HIGHER EDUCATION FUNDING COUNCIL FOR ENGLAND
HEFCW - HIGHER EDUCATION FUNDING COUNCIL FOR WALES

IANI - INTENDED AVERAGE NET INCOME

JPAC - JOINT PLANNING ADVISORY COMMITTEE

MMR - MEDICAL MANPOWER RECORD
MMSAC - MEDICAL MANPOWER STANDING ADVISORY COMMITTEE
MPS - MAIN PUBLIC SECTOR
MTM - MEDIUM TERM MODEL

NAHAT - NATIONAL ASSOCIATION OF HEALTH AUTHORITIES AND TRUSTS
NHS - NATIONAL HEALTH SERVICE
NP - NURSE PRACTITIONER

ODTS - OVERSEAS DOCTORS TRAINING SCHEME

PCFC - POLYTECHNIC AND COLLEGES FUNDING COUNCIL
PHM - PUBLIC HEALTH MEDICINE
PLAB - PROFESSIONAL AND LINGUISTIC ASSESSMENT BOARD
PRHOs - PRE-REGISTRATION HOUSE OFFICERS
PWG - PERMANENT WORKING GROUP

RCGP - ROYAL COLLEGE OF GENERAL PRACTITIONERS
RHA - REGIONAL HEALTH AUTHORITY

SHEFC - SCOTTISH HIGHER EDUCATION FUNDING COUNCIL
SCOPME - STANDING COMMITTEE ON POSTGRADUATE MEDICAL EDUCATION
SHO - SENIOR HOUSE OFFICER
SIFTR - SERVICE INCREMENT FOR TEACHING AND RESEARCH
SR - SENIOR REGISTRAR

UCCA - UNIVERSITIES' CENTRAL COUNCIL ON ADMISSIONS
UFC - UNIVERSITIES' FUNDING COUNCIL
UK - UNITED KINGDOM

WIST - WOMEN IN SURGICAL TRAINING
WTE - WHOLE TIME EQUIVALENT

APPENDIX 4

BIBLIOGRAPHY

1. Allen I. *Doctors and their careers.* London, Policy Studies Institute, 1988.

2. Department of Health. *The Health of the Nation*: a strategy for health in England. Cm 1986, London, HMSO, 1992

3. Department of Health. *The Patient's Charter.* London, Department of Health, 1991.

4. Department of Health. *Report of the Second Advisory Committee for Medical Manpower Planning.* ('ACMMPII'). London, Department of Health, 1989.

5. Department of Health. *Working for Patients*: the Health Service Caring for the 1990s. Cm 555, London, HMSO, 1989

6. Department of Health. *Women doctors and their careers*: report of the Joint Working Party. London, Department of Health, 1991.

7. Department of Health. *Report of the Inquiry into London's health services, medical education and research.* ('Tomlinson' report). London, HMSO, 1992.

8. Department of Health and Social Security. *Medical Manpower - The next twenty years*: a discussion paper. London, HMSO, 1978.

9. Department of Health and Social Security. *Report of the Advisory Committee for Medical Manpower Planning.* ('ACMMPI'). London, DHSS, 1985.

10. Dowie R. *Patterns of Hospital Medical Staffing.*
1. Paediatrics, 2. Obstetrics and Gynaecology,
3. General Surgery, 4. Trauma and Orthopaedic Surgery,
5. Ophthalmology, 6. Anaesthetics,
7. General Medicine, 8. General Psychiatry
9. Overview. London, HMSO, 1991.

11. Field M G. *Success and crises in National Health Systems.* London, Routledge, 1989.

12. Home Office and Department of Health. *Review of health and social services for mentally disordered offenders and others requiring similar services*: report of the Staffing and Training Advisory Group. London, Home Office, 1992.

13. Home Office. *Statement of Changes in the Immigration Rules.* House of Commons Paper 293, Session 1984-85, Cmnd 9539, London, HMSO, 1985.

14. *Hospital Medical Staffing - Achieving a Balance.* London, Department of Health and Social Security, 1986.

15. *Hospital Medical Staffing - Achieving a Balance. Plan for action.* London, Department of Health and Social Security, 1987.

16. House of Commons. Fourth report from the Social Services Committee. Session 1980-81. ***Medical education, with special reference to the number of doctors and the career structure in hospitals.*** London, HMSO, 1981.

17. *Junior Doctors: The New Deal.* London, NHS Management Executive, 1991.

18. *The NHS and Community Care Act 1990.* London, HMSO, 1990.

19. Nicholl JP, Williams BT. *Medical employment outside the NHS.* Report to Department of Health and Social Security, 1987.

20. Nicholl JP. *The current occupations of doctors not working in the NHS in 1986.* Report to Department of Health, 1990.

21. Nicholl JP. *A profile of doctors who recently deregistered.* Final report to the Department of Health 1990.

22. Parkhouse J. *Doctors' careers: aims and experiences of medical graduates.* London, Routledge, 1991.

23. Permanent Working Group of European Junior Hospital Doctors. *Medical manpower in Europe: from surplus to deficit?* Bern, PWG, 1991.

24. Phillips V. *Health and Social Services Manpower: a review of research 1986-92.* London, Health Services Research Unit, 1992.

25. Public Health in England. *The report of the Committee of Inquiry into the future development of the Public Health function.* ('Acheson' report). Cm 289, London, HMSO, 1988.

26. *A Regional Strategy for Northern Ireland 1992-1997.* Department of Health and Social Services, Northern Ireland, 1992.

27. *Royal Commission on Medical Education 1965-1968.* Report. ('Todd' report). Cmnd 3569, London, HMSO, 1968.

28. The Scottish Office. *Scotland's Health - A Challenge to us all:* a policy statement. Edinburgh, HMSO, 1992.

29. The Scottish Office. *The Patient's Charter - A Charter for Health.* Edinburgh, HMSO, 1991.

30. Standing Committee on Postgraduate Medical Education. *Uptake and costs of study leave:* results of a retrospective survey in 15 health districts in England. London, SCOPME, 1991.

31. *Strategic Intent and Direction for the NHS in Wales.* Cardiff, Welsh Office, 1990.

32. *Training and the hospital career structure*: a NAHAT discussion paper. London, NAHAT, 1992.

33. Wilson R, Stilwell J. *The National Health Service and the Labour Market*. Aldershot, Avebury, 1992.

34. *Your choices for the future: a survey of GP opinion.* UK report. Electoral Reform Ballot Services for the General Medical Services Committee, British Medical Association, 1992.

APPENDIX 5

THE MEDICAL MANPOWER RECORD AND THE CAREER SIMULATION MODEL

THE MEDICAL MANPOWER RECORD

The Medical Manpower Record (MMR) is the chief source of information on flows of doctors into, out of or within the Main Public Sector (MPS), and has been used extensively in deriving leaving, rejoining and promotion assumptions for the modelling of supply. The current MMR has replaced an earlier version which was used by ACMMPII. It combines data from separate annual censuses of medically qualified staff in Great Britain, which cover the HCHS, GPs, medically qualified staff in Universities and General Ophthalmic Practitioners. These censuses provide data on each doctor's grade, specialty, nature of contract, etc. The information relates to 30 September each year. Data for Northern Ireland are added to the MMR information to produce inputs to the model.

The MMR combines data from successive censuses, matching information about each doctor by their unique GMC number. This allows the movements of doctors to be identified and cohorts of doctors to be traced over time. The MMR currently covers the years 1984-1990.

Being a complex, combined record, the MMR can be affected by inaccuracies in any of its sources, though some inconsistencies in census information can be identified and corrected during the matching process. Nevertheless there are concerns about the accuracy of some of the information, so MMR results have to be used carefully, and checked against other sources, such as the Parkhouse cohort studies, when they are available.

The strength of the MMR is that it provides all the information needed to formulate assumptions for forecasting, such as leaving rates, by grade, sex, age and place of birth. On the basis of information about the recent past, judgements can be made in forming assumptions about the future values of these rates, which determine the results of a forecast.

The MMR does not provide information about the activities of doctors while they are not working in the NHS. Past projections have been prepared by assuming that re-entry to the NHS will continue at a similar level to the recent past, but a fuller consideration of re-entry would require better knowledge about doctors outside the NHS, their occupations, their likelihood of returning, and the factors which might influence this choice.

THE CAREER SIMULATION MODEL

The Career Simulation Model (CSM) has been developed for use in place of the more complex Medium Term Model (MTM) used by ACMMPII. Both models depend on a large number of assumptions covering movement rates (ie the proportions of doctors who are expected to rejoin, leave or be promoted within the system in any year) as well as inputs on the initial number ('stock') of doctors, and the annual intake in each future year. However, the CSM has a simpler structure than MTM, and hence it is easier to validate the results from this model and to interpret the effects of varying the supply assumptions.

The model works by simulating the progression through the medical career structure of the initial stock of doctors and the subsequent joiners, according to the pre-specified movement rates. These rates, which are specified separately for home/EC male, home/EC female and pre-1985 overseas doctors, vary by grade and by time since qualification (TSQ). (The model was not used in the preparation of projections of post-1985 overseas doctors in this report.)

The progression of a cohort of new PRHOs through the model is thus determined by the movement rates assumed to apply as they progress through the system. The sequential application of these rates to the cohort generates a modelled career progression, which indicates, a given number of years after their entry, how many are likely to be in each grade, and how many are likely to be outside the MPS.

The future career progressions of doctors already in the MPS in the base year (in this case 1990) can also be modelled using the same assumptions, with rates applied appropriate to their actual times since qualification. It is also necessary to calculate an assumed number of doctors out of service in 1990, so that the re-joining rates will generate realistic numbers of re-entrants to the MPS.

The main difference between this approach to modelling and that used by ACMMPII, is that it is no longer necessary to specify target numbers of doctors at each grade as inputs to the model. Nevertheless, both models are alike in forecasting the supply of doctors, which then has to be compared with an assessment of demand.

APPENDIX 6

DETAILED MODELLING INFORMATION

Tables 6 and 6A to 6E summarise the results of the six supply projections described in Chapter 13. The layout of these tables is designed for ready comparison with the demand projections in Tables 12.1 to 12.4.

Tables 6F to 6K give the results of the six supply projections in greater detail.

For comparison with the detailed supply tables, Tables 6L to 6P give a finer breakdown of the four demand projections. They show figures for each training grade separately, and for 1995 and 2005 as well as 2000 and 2010.

A description of the grades included in the modelling baseline is shown in Section 4 of this Appendix.

Section 1: Summary of Supply Projections[1]

TABLE 6 CENTRAL SUPPLY PROJECTION

	1990	2000	2010
Consultants	20,300	24,600	27,400
Other hosp career grades	4,200	4,300	4,600
GMS	33,000	35,000	35,100
CHS	4,000	3,900	4,000
Training grades	34,900	35,400	36,700
Total	96,400	103,300	107,800

TABLE 6A SUPPLY PROJECTION variant A

	1990	2000	2010
Consultants	20,300	24,600	27,300
Other hosp career grades	4,200	4,300	4,600
GMS	33,000	35,000	34,600
CHS	4,000	3,900	3,900
Training grades	34,900	34,800	35,000
Total	96,400	102,700	105,400

TABLE 6B SUPPLY PROJECTION variant B

	1990	2000	2010
Consultants	20,300	25,400	29,600
Other hosp career grades	4,200	4,600	5,100
GMS	33,000	35,600	36,300
CHS	4,000	4,000	4,200
Training grades	34,900	36,500	37,900
Total	96,400	106,200	113,100

TABLE 6C SUPPLY PROJECTION variant C

	1990	2000	2010
Consultants	20,300	23,900	25,700
Other hosp career grades	4,200	4,100	4,300
GMS	33,000	34,500	34,200
CHS	4,000	3,700	3,700
Training grades	34,900	34,400	35,600
Total	96,400	100,600	103,400

TABLE 6D SUPPLY PROJECTION variant D

	1990	2000	2010
Consultants	20,300	29,200	34,300
Other hosp career grades	4,200	4,500	4,900
GMS	33,000	35,100	35,200
CHS	4,000	3,900	4,000
Training grades	34,900	31,700	32,500
Total	96,400	104,500	110,900

TABLE 6E SUPPLY PROJECTION variant E

	1990	2000	2010
Consultants	20,300	24,600	27,400
Other hosp career grades	4,200	4,300	4,600
GMS	33,000	35,000	35,100
CHS	4,000	3,900	3,900
Training grades	34,900	37,900	39,200
Total	96,400	105,700	110,200

1 Totals and sums of rounded figures may not tally

Section 2: Details of Supply Projections

Table 6F

Central Projection

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990									
UK & EC Male	2,065	7,161	4,481	3,211	14,935	1,244	20,505	477	54,079
UK & EC Female	1,722	5,526	1,852	1,341	2,802	1,458	7,032	2,557	24,290
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	47	1,376	945	317	2,447	1,246	5,237	833	12,448
Total	3,917	16,291	9,527	5,202	20,308	4,235	32,970	3,952	96,402
Grade Split	4.1%	16.9%	9.9%	5.4%	21.1%	4.4%	34.2%	4.1%	
1995									
UK & EC Male	1,911	6,655	4,173	3,166	16,279	1,169	20,445	489	54,287
UK & EC Female	1,911	6,643	2,701	1,682	3,810	1,691	8,225	2,359	29,023
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	221	171	225	2,243	1,021	5,168	842	9,891
Total	3,906	15,747	9,293	5,406	22,456	4,168	34,034	3,776	98,786
Grade Split	4.0%	15.9%	9.4%	5.5%	22.7%	4.2%	34.5%	3.8%	
2000									
UK & EC Male	2,026	6,962	3,942	2,896	17,447	1,161	20,533	552	55,519
UK & EC Female	2,026	7,175	3,099	2,146	5,236	2,052	9,676	2,449	33,858
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	123	57	81	1,842	820	4,630	775	8,329
Total	4,135	16,488	9,347	5,456	24,649	4,320	35,035	3,862	103,291
Grade Split	4.0%	16.0%	9.0%	5.3%	23.9%	4.2%	33.9%	3.7%	
2005									
UK & EC Male	2,026	7,154	4,111	2,857	17,714	1,169	20,505	615	56,150
UK & EC Female	2,026	7,403	3,344	2,424	6,908	2,430	11,118	2,592	38,244
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	47	24	34	1,339	588	3,709	615	6,356
Total	4,135	16,831	9,727	5,647	26,086	4,474	35,528	3,907	106,334
Grade Split	3.9%	15.8%	9.1%	5.3%	24.5%	4.2%	33.4%	3.7%	
2010									
UK & EC Male	2,026	7,167	4,187	2,953	17,775	1,177	20,083	665	56,033
UK & EC Female	2,026	7,423	3,433	2,585	8,668	2,823	12,339	2,774	42,072
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	15	2	10	844	360	2,467	435	4,133
Total	4,135	16,833	9,872	5,882	27,412	4,647	35,085	3,958	107,823
Grade Split	3.8%	15.6%	9.2%	5.5%	25.4%	4.3%	32.5%	3.7%	

Assumptions:

1) No Extra PRHO's from 1998
2) Time in training reduced by 1 year for Consultants
3) Earlier retirement by 1 year 1991-2000, and 2 years 2001-2010
4) 50:50 split for male and female medical school intake
5) Pre 85 Overseas Doctors diminishing each year
6) Post 85 Overseas Doctors remain at current levels

Variant A   No Extra Medical School Intake

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990									
UK & EC Male	2,065	7,161	4,481	3,211	14,935	1,244	20,505	477	54,079
UK & EC Female	1,722	5,526	1,852	1,341	2,802	1,458	7,032	2,557	24,290
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	47	1,376	945	317	2,447	1,246	5,237	833	12,448
Total	**3,917**	**16,291**	**9,527**	**5,202**	**20,308**	**4,235**	**32,970**	**3,952**	96,402
Grade Split	4.1%	16.9%	9.9%	5.4%	21.1%	4.4%	34.2%	4.1%	
1995									
UK & EC Male	1,911	6,655	4,173	3,166	16,279	1,169	20,445	489	54,287
UK & EC Female	1,911	6,643	2,701	1,682	3,810	1,691	8,225	2,359	29,023
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	221	171	225	2,243	1,021	5,168	842	9,891
Total	**3,906**	**15,747**	**9,293**	**5,406**	**22,456**	**4,168**	**34,034**	**3,776**	98,786
Grade Split	4.0%	15.9%	9.4%	5.5%	22.7%	4.2%	34.5%	3.8%	
2000									
UK & EC Male	1,911	6,761	3,940	2,896	17,447	1,161	20,532	552	55,201
UK & EC Female	1,911	6,975	3,096	2,146	5,236	2,052	9,675	2,449	33,539
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	123	57	81	1,842	820	4,630	775	8,329
Total	**3,906**	**16,088**	**9,342**	**5,456**	**24,649**	**4,320**	**35,033**	**3,861**	102,655
Grade Split	3.8%	15.7%	9.1%	5.3%	24.0%	4.2%	34.1%	3.8%	
2005									
UK & EC Male	1,911	6,766	3,956	2,827	17,712	1,160	20,410	609	55,352
UK & EC Female	1,911	7,005	3,230	2,399	6,906	2,414	11,040	2,578	37,483
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	47	24	34	1,339	588	3,709	615	6,356
Total	**3,906**	**16,046**	**9,458**	**5,593**	**26,082**	**4,449**	**35,355**	**3,887**	104,775
Grade Split	3.7%	15.3%	9.0%	5.3%	24.9%	4.2%	33.7%	3.7%	
2010									
UK & EC Male	1,911	6,765	3,961	2,826	17,700	1,154	19,835	650	54,803
UK & EC Female	1,911	7,006	3,253	2,487	8,615	2,773	12,129	2,733	40,907
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	15	2	10	844	360	2,467	435	4,133
Total	**3,906**	**16,013**	**9,465**	**5,656**	**27,283**	**4,574**	**34,628**	**3,903**	105,427
Grade Split	3.7%	15.2%	9.0%	5.4%	25.9%	4.3%	32.8%	3.7%	

Assumptions:

1) No Extra PRHO's from 1998
2) Time in training reduced by 1 year for Consultants
3) Earlier retirement by 1 year 1991-2000, and 2 years 2001-2010
4) 50:50 split for male and female medical school intake
5) Pre 85 Overseas Doctors diminishing each year
6) Post 85 Overseas Doctors remain at current levels

Table 6H

Variant B Reduced Leaving Rates

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990									
UK & EC Male	2,065	7,161	4,481	3,211	14,935	1,244	20,505	477	54,079
UK & EC Female	1,722	5,526	1,852	1,341	2,802	1,458	7,032	2,557	24,290
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	47	1,376	945	317	2,447	1,246	5,237	833	12,448
Total	3,917	16,291	9,527	5,202	20,308	4,235	32,970	3,952	96,402
Grade Split	4.1%	16.9%	9.9%	5.4%	21.1%	4.4%	34.2%	4.1%	
1995									
UK & EC Male	1,911	6,766	4,368	3,350	16,481	1,253	20,582	513	55,224
UK & EC Female	1,911	6,842	2,830	1,764	3,879	1,758	8,348	2,414	29,747
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	221	171	225	2,243	1,021	5,168	842	9,891
Total	3,906	16,057	9,618	5,671	22,728	4,319	34,295	3,853	100,448
Grade Split	3.9%	16.0%	9.6%	5.6%	22.6%	4.3%	34.1%	3.8%	
2000									
UK & EC Male	2,026	7,064	4,144	3,135	18,005	1,296	20,795	597	57,062
UK & EC Female	2,026	7,384	3,287	2,320	5,472	2,190	9,963	2,547	35,187
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	123	57	81	1,842	820	4,630	775	8,329
Total	4,135	16,800	9,736	5,869	25,442	4,592	35,584	4,004	106,163
Grade Split	3.9%	15.8%	9.2%	5.5%	24.0%	4.3%	33.5%	3.8%	
2005									
UK & EC Male	2,026	7,254	4,317	3,101	18,690	1,339	20,923	675	58,325
UK & EC Female	2,026	7,618	3,551	2,645	7,426	2,648	11,593	2,741	40,247
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	47	24	34	1,339	588	3,709	615	6,356
Total	4,135	17,147	10,141	6,112	27,579	4,862	36,421	4,116	110,512
Grade Split	3.7%	15.5%	9.2%	5.5%	25.0%	4.4%	33.0%	3.7%	
2010									
UK & EC Male	2,026	7,266	4,394	3,205	19,103	1,369	20,616	738	58,717
UK & EC Female	2,026	7,638	3,647	2,828	9,493	3,113	12,992	2,963	44,700
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	15	2	10	844	360	2,467	435	4,133
Total	4,135	17,147	10,292	6,376	29,563	5,129	36,272	4,221	113,135
Grade Split	3.7%	15.2%	9.1%	5.6%	26.1%	4.5%	32.1%	3.7%	

Assumptions:
1) No Extra PRHO's from 1998
2) Time in training reduced by 1 year for Consultants
3) Earlier retirement by 1 year 1991-2000, and 2 years 2001-2010
4) 50:50 split for male and female medical school intake
5) Pre 85 Overseas Doctors diminishing each year
6) Post 85 Overseas Doctors remain at current levels
7) Premature leaving rates reduced by 20%

Table 6I

Variant C Increased Leaving Rates

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990									
UK & EC Male	2,065	7,161	4,481	3,211	14,935	1,244	20,505	477	54,079
UK & EC Female	1,722	5,526	1,852	1,341	2,802	1,458	7,032	2,557	24,290
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	47	1,376	945	317	2,447	1,246	5,237	833	12,448
Total	**3,917**	**16,291**	**9,527**	**5,202**	**20,308**	**4,235**	**32,970**	**3,952**	96,402
Grade Split	4.1%	16.9%	9.9%	5.4%	21.1%	4.4%	34.2%	4.1%	
1995									
UK & EC Male	1,911	6,546	3,988	2,992	16,082	1,092	20,310	467	53,388
UK & EC Female	1,911	6,451	2,577	1,605	3,742	1,628	8,106	2,307	28,326
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	221	171	225	2,243	1,021	5,168	842	9,891
Total	**3,906**	**15,446**	**8,985**	**5,154**	**22,191**	**4,028**	**33,780**	**3,701**	97,190
Grade Split	4.0%	15.9%	9.2%	5.3%	22.8%	4.1%	34.8%	3.8%	
2000									
UK & EC Male	2,026	6,861	3,754	2,677	16,922	1,046	20,277	512	54,074
UK & EC Female	2,026	6,972	2,923	1,986	5,014	1,925	9,401	2,357	32,604
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	123	57	81	1,842	820	4,630	775	8,329
Total	**4,135**	**16,184**	**8,982**	**5,077**	**23,902**	**4,078**	**34,504**	**3,729**	100,592
Grade Split	4.1%	16.1%	8.9%	5.0%	23.8%	4.1%	34.3%	3.7%	
2005									
UK & EC Male	2,026	7,054	3,917	2,634	16,918	1,038	20,192	561	54,340
UK & EC Female	2,026	7,195	3,149	2,222	6,466	2,238	10,701	2,460	36,457
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	47	24	34	1,339	588	3,709	615	6,356
Total	**4,135**	**16,524**	**9,339**	**5,223**	**24,847**	**4,151**	**34,797**	**3,721**	102,737
Grade Split	4.0%	16.1%	9.1%	5.1%	24.2%	4.0%	33.9%	3.6%	
2010									
UK & EC Male	2,026	7,069	3,992	2,722	16,697	1,035	19,720	600	53,861
UK & EC Female	2,026	7,216	3,233	2,364	7,987	2,574	11,796	2,608	39,803
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	15	2	10	844	360	2,467	435	4,133
Total	**4,135**	**16,528**	**9,477**	**5,430**	**25,651**	**4,256**	**34,180**	**3,727**	103,383
Grade Split	4.0%	16.0%	9.2%	5.3%	24.8%	4.1%	33.1%	3.6%	

Assumptions:

1) No Extra PRHO's from 1998
2) Time in training reduced by 1 year for Consultants
3) Earlier retirement by 1 year 1991-2000, and 2 years 2001-2010
4) 50:50 split for male and female medical school intake
5) Pre 85 Overseas Doctors diminishing each year
6) Post 85 Overseas Doctors remain at current levels
7) Premature leaving rates increased by 20%

Table 6J

Variant D Decreased Training Times

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990									
UK & EC Male	2,065	7,161	4,481	3,211	14,935	1,244	20,505	477	54,079
UK & EC Female	1,722	5,526	1,852	1,341	2,802	1,458	7,032	2,557	24,290
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	47	1,376	945	317	2,447	1,246	5,237	833	12,448
Total	3,917	16,291	9,527	5,202	20,308	4,235	32,970	3,952	96,402
Grade Split	4.1%	16.9%	9.9%	5.4%	21.1%	4.4%	34.2%	4.1%	
1995									
UK & EC Male	1,911	6,655	2,863	2,386	18,505	1,215	20,490	501	54,526
UK & EC Female	1,911	6,643	2,002	1,356	4,772	1,772	8,249	2,394	29,099
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	221	171	225	2,243	1,021	5,168	842	9,891
Total	3,906	15,746	7,284	4,300	25,645	4,295	34,103	3,823	99,102
Grade Split	3.9%	15.9%	7.4%	4.3%	25.9%	4.3%	34.4%	3.9%	
2000									
UK & EC Male	2,026	6,962	2,687	1,959	20,377	1,207	20,592	565	56,374
UK & EC Female	2,026	7,175	2,234	1,483	6,893	2,158	9,711	2,497	34,176
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	123	57	81	1,842	820	4,630	775	8,329
Total	4,135	16,488	7,227	3,856	29,236	4,471	35,129	3,923	104,465
Grade Split	4.0%	15.8%	6.9%	3.7%	28.0%	4.3%	33.6%	3.8%	
2005									
UK & EC Male	2,026	7,154	2,792	1,951	21,271	1,223	20,585	632	57,633
UK & EC Female	2,026	7,403	2,394	1,615	9,066	2,556	11,163	2,652	38,874
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	47	24	34	1,339	588	3,709	615	6,356
Total	4,135	16,831	7,459	3,932	31,801	4,654	35,653	3,984	108,448
Grade Split	3.8%	15.5%	6.9%	3.6%	29.3%	4.3%	32.9%	3.7%	
2010									
UK & EC Male	2,026	7,167	2,825	1,975	22,062	1,238	20,184	686	58,163
UK & EC Female	2,026	7,423	2,441	1,690	11,276	2,967	12,393	2,843	43,059
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	1	15	2	10	844	360	2,467	435	4,133
Total	4,135	16,833	7,517	4,007	34,306	4,852	35,240	4,049	110,940
Grade Split	3.7%	15.2%	6.8%	3.6%	30.9%	4.4%	31.8%	3.6%	

Assumptions:
1) 229 Extra PRHO's from 1998
2) Time in training reduced by 4 years for Consultants
3) Earlier retirement by 1 year 1991-2000, and 2 years 2001-2010
4) 50:50 split for male and female medical school intake
5) Pre 85 Overseas Doctors diminishing each year
6) Post 85 Overseas Doctors remain at current levels

Table 6K

Variant E Increasing Overseas Doctors

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990									
UK & EC Male	2,065	7,161	4,481	3,211	14,935	1,244	20,505	477	54,079
UK & EC Female	1,722	5,526	1,852	1,341	2,802	1,458	7,032	2,557	24,290
Post85 Oseas	83	2,228	2,249	333	124	287	196	85	5,585
Pre85 Oseas	47	1,376	945	317	2,447	1,246	5,237	833	12,448
Total	3,917	16,291	9,527	5,202	20,308	4,235	32,970	3,952	96,402
Grade Split	4.1%	16.9%	9.9%	5.4%	21.1%	4.4%	34.2%	4.1%	
1995									
UK & EC Male	1,911	6,655	4,173	3,166	16,279	1,169	20,445	489	54,287
UK & EC Female	1,911	6,643	2,701	1,682	3,810	1,691	8,225	2,359	29,023
Post85 Oseas	125	3,342	3,374	500	124	287	196	85	8,032
Pre85 Oseas	1	221	171	225	2,243	1,020	5,168	842	9,892
Total	3,948	16,862	10,418	5,573	22,455	4,167	34,034	3,776	101,233
Grade Split	3.9%	16.7%	10.3%	5.5%	22.2%	4.1%	33.6%	3.7%	
2000									
UK & EC Male	2,026	6,962	3,942	2,896	17,447	1,161	20,533	552	55,519
UK & EC Female	2,026	7,175	3,099	2,146	5,236	2,052	9,676	2,449	33,858
Post85 Oseas	125	3,342	3,374	500	124	287	196	85	8,032
Pre85 Oseas	1	123	57	81	1,842	820	4,630	775	8,329
Total	4,176	17,601	10,472	5,623	24,649	4,320	35,035	3,861	105,737
Grade Split	3.9%	16.6%	9.9%	5.3%	23.3%	4.1%	33.1%	3.7%	
2005									
UK & EC Male	2,026	7,154	4,111	2,857	17,714	1,169	20,505	615	56,150
UK & EC Female	2,026	7,403	3,344	2,424	6,908	2,430	11,118	2,592	38,244
Post85 Oseas	125	3,342	3,374	500	124	287	196	85	8,032
Pre85 Oseas	1	47	24	34	1,339	589	3,709	615	6,357
Total	4,176	17,945	10,851	5,814	26,086	4,475	35,528	3,907	108,782
Grade Split	3.8%	16.5%	10.0%	5.3%	24.0%	4.1%	32.7%	3.6%	
2010									
UK & EC Male	2,026	7,167	4,187	2,953	17,775	1,177	20,083	665	56,033
UK & EC Female	2,026	7,423	3,433	2,585	8,668	2,823	12,339	2,774	42,072
Post85 Oseas	125	3,342	3,374	500	124	287	196	85	8,032
Pre85 Oseas	1	15	2	10	844	360	2,467	435	4,133
Total	4,176	17,948	10,996	6,048	27,412	4,647	35,085	3,958	110,270
Grade Split	3.8%	16.3%	10.0%	5.5%	24.9%	4.2%	31.8%	3.6%	

Assumptions:

1) 229 Extra PRHO's from 1998
2) Time in training reduced by 1 year for Consultants
3) Earlier retirement by 1 year 1991-2000, and 2 years 2001-2010
4) 50:50 split for male and female medical school intake
5) Pre 85 Overseas Doctors diminishing each year
6) Post 85 Overseas Doctors in training 50% above 1990 level by 1995

Section 3: Breakdown of Demand Projections[1]

TABLE 6L "ZERO HCHS GROWTH" DEMAND PROJECTION

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990	3,900	16,300	9,500	5,200	20,300	4,200	33,000	4,000	96,400
1995	4,000	16,500	9,600	5,300	20,500	4,300	34,300	4,000	98,400
2000	4,000	16,600	9,700	5,300	20,700	4,300	35,700	4,000	100,400
2005	4,000	16,800	9,800	5,400	20,900	4,400	37,200	4,100	102,500
2010	4,100	17,000	9,900	5,400	21,100	4,400	38,700	4,100	104,700

TABLE 6M "LOWER HCHS GROWTH" DEMAND PROJECTION

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990	3,900	16,300	9,500	5,200	20,300	4,200	33,000	4,000	96,400
1995	4,000	16,500	9,600	5,300	22,600	4,300	34,300	4,000	100,500
2000	4,000	16,600	9,700	5,300	25,300	4,300	35,700	4,000	105,000
2005	4,000	16,800	9,800	5,400	28,200	4,400	37,200	4,100	109,800
2010	4,100	17,000	9,900	5,400	31,400	4,400	38,700	4,100	115,000

TABLE 6N "CONTINUED HCHS GROWTH" DEMAND PROJECTION

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990	3,900	16,300	9,500	5,200	20,300	4,200	33,000	4,000	96,400
1995	4,000	16,500	9,600	5,300	23,200	4,300	34,300	4,000	101,100
2000	4,000	16,600	9,700	5,300	26,500	4,300	35,700	4,000	106,200
2005	4,000	16,800	9,800	5,400	30,300	4,400	37,200	4,100	111,900
2010	4,100	17,000	9,900	5,400	34,600	4,400	38,700	4,100	118,200

TABLE 6P "HIGHER HCHS GROWTH" DEMAND PROJECTION

	Training Grades				Non-Training Grades				TOTAL
	PRHO	SHO	Reg	Sen Reg	Cons	Other	GMS	CHS	
1990	3,900	16,300	9,500	5,200	20,300	4,200	33,000	4,000	96,400
1995	4,000	16,500	9,600	5,300	23,800	4,300	34,300	4,000	101,600
2000	4,000	16,600	9,700	5,300	27,800	4,300	35,700	4,000	107,500
2005	4,000	16,800	9,800	5,400	32,600	4,400	37,200	4,100	114,200
2010	4,100	17,000	9,900	5,400	38,200	4,400	38,700	4,100	121,700

[1] Totals and sums of rounded figures may not tally

Section 4

Grades Included in the Modelling Baseline

Consultant:	Hospital Consultant
	Regional Medical Officer
	District Medical Officer
	Specialist in Community Medicine
	Professor
	Reader
	Senior Lecturer
	Consultant Undertaking Teaching Duties
Other Non-Training Grades:	Staff Grade
	P94 appointment
	Associate Specialist
	Hospital Practitioner
	Special Salary Scale Staff (CHS)
	SMO in Community Medicine
Senior Registrar:	Senior Registrar (career and visiting)
	Senior Registrar in Community Medicine
	Lecturer
	Demonstrator/Assistant Demonstrator
	Independent Research Worker
Registrar:	Registrar (career and visiting)
	Registrar in Community Medicine
	Research Assistant
	Tutor
	Other research staff
Senior House Officer:	SHO in Hospital and Community Medicine
	GP Trainee
House Officer:	Pre Registration House Officer
General Medical Service:	Principal (unrestricted)
	Principal (restricted)
	Assistant
	Ophthalmic Practitioner
Community Health Service:	Senior Clinical Medical Officer
	Clinical Medical Officer
	Other Medical Staff

APPENDIX 7

ADDITIONAL TABLES

TABLE 7A: DOCTORS WORKING IN THE NHS OR UNIVERSITIES IN 1990[1] (United Kingdom)

Hospital Service[2]	Number	WTE
Consultant	19,720	18,418
AS/Para 94/Staff Grade etc	4,233	2,038
Senior Registrar	5,058	4,871
Registrar	9,312	9,059
Senior House Officer	14,163	14,051
Pre-Registration House Officer	3,917	3,909
Hospital Service Total	*56,403*	*52,345*
Public Health Medicine[3]		
Career Grade	590	540
Other	391	362
Public Health Medicine Total	*981*	*902*
Community Health Services[4]	3,952	2,198
HCHS Total	*60,355*	*54,543*
General Medical Services		
Principals	32,286	
Other[5]	684	
Trainees	2,096	
GMS Total	*35,066*	
Main Public Sector Total	**96,402**	

[1] Great Britain figures are derived from the Medical Manpower Record; those working more than one branch being counted only in their main branch of work. An allowance ha been made for those doctors missing from the 1990 census but included in the 1989 census and likely to be included in the 1991 census. Figures for Northern Ireland ar supplied by the Department of Health and Social Services, Northern Ireland.

[2] Includes University equivalents.

[3] "Career Grade" includes Regional and District Directors, Senior Medical Officers a Specialists in Public Health Medicine. "Other" includes Senior Registrars, Registrar and Senior House Officers in Public Health Medicine.

[4] Includes SCMO, CMO and Other Community Health Medical Staff.

[5] Includes ophthalmic practitioners, GP assistants and GP associates.

TABLE 7B UNRESTRICTED PRINCIPALS, ASSISTANTS AND TRAINEES IN GENERAL PRACTICE (Great Britain)

YEAR	PRINCIPALS			AST	TRAINEES			TOT
	M	F	Tot	Tot	M	F	Tot	
1981	22,987	4,505	27,492	323	1,309	732	2,041	29,856
1982	23,381	4,791	28,072	307	1,334	737	2,071	30,450
1983	23,612	5,046	28,658	321	1,318	809	2,127	31,106
1984	23,793	5,355	29,148	306	1,384	851	2,235	31,689
1985	24,018	5,645	29,663	267	1,367	923	2,288	32,218
1986	24,179	6,008	30,187	289	1,284	882	2,166	32,642
1987	24,315	6,404	30,719	272	1,286	936	2,222	33,213
1988	24,378	6,820	31,198	286	1,219	1,002	2,221	33,705
1989	24,398	7,166	31,564	275	1,180	1,105	2,285	34,124
1990	24,063	7,481	31,544	234	1,075	1,014	2,089	33,867
1991[1]	23,746	7,895	31,641	487	1,100	1,047	2,147	34,275

[1] Increase in GP Assistants attributable to the introduction of compulsory retirement for GP Principals at age 70.

Source: UK Health Departments

TABLE 7C GENERAL PRACTICE LIST SIZES

YEAR	ENGLAND	SCOTLAND	WALES	N.I	U.K.
1979	2,286	1,846	2,133	2,165	2,228
1980	2,247	1,836	2,086	2,097	2,190
1981	2,201	1,804	2,057	2,032	2,147
1982	2,155	1,791	2,013	1,981	2,104
1983	2,116	1,749	1,975	1,951	2,065
1984	2,084	1,714	1,946	1,925	2,036
1985	2,068	1,683	1,914	1,865	2,013
1986	2,042	1,660	1,881	1,825	1,986
1987	2,020	1,642	1,849	1,835	1,965
1988	1,999	1,615	1,851	1,808	1,944
1989	1,971	1,592	1,819	1,792	1,917
1990	1,942	1,595	1,813	1,810	1,895
1991	1,947	1,579	1,774	1,822	1,860

Source: Health Departments 1992

TABLE 7D MEDICAL SCHOOL INTAKE (United Kingdom)[1]

Year	Home	Overseas	Male	Female	Total
1980/81	3870	140	2390	1620	4010
1981/82	3922	150	2336	1736	4072
1982/83	3973	181	2331	1823	4154
1983/84	3943	165	2307	1801	4108
1984/85	3944	181	2311	1814	4125
1985/86	3902	191	2224	1869	4093
1986/87	3897	222	2258	1861	4119
1987/88	3883	242	2249	1876	4125
1988/89	3918	268	2237	1949	4186
1989/90	3946	273	2212	2007	4219
1990/91	3999	312	2216	2095	4311

Source: Universities' Funding Council 1992

[1] July census figure

TABLE 7E APPLICATIONS FOR MEDICAL SCHOOL PLACES (United Kingdom)

Year	Male	Female	Total
1985	5743	4559	10302
1986	5782	4526	10308
1987	5606	4607	10213
1988	5206	4617	9823
1989	5203	4534	9737
1990	5178	4588	9766
1991	4998	4868	9866

Source: Universities Central Council on Admissions 1992

TABLE 7F EFFECTS OF CHANGES TO THE BALANCE OF HOME AND OVERSEAS STUDENTS (United Kingdom)

Effect on Current (Todd) Target of Different Quotas for Overseas Students:

	5% Current Quota	7.5%	10%	Actual Intake 1990/91
Total Intake	4230	4230	4230	**4311**
Overseas Students	212	317	423	312
Home Students[1]	4018	3913	3807	3999
Planning Total[2]	4124	4071	4019	4155

Effect on the Revised Target (4470) of Different Quotas for Overseas Students:

	5%	7.5% Proposed Quota	10%
Total Intake	4470	4470	4470
Overseas Students	224	336	447
Home Students[1]	4246	4134	4023
Planning Total[2]	4358	4302	4247
Effective increase in Home Students[3]	247	135[4]	24

[1] Home student totals include EC students

[2] The planning totals follow the assumption that 50% of overseas students remain in the UK and enter the career structure. There is a deficiency of information available into whether overseas students do stay. In this report we follow ACMMPII's proxy measurement but will return to this problem in a future report.

[3] The increase in the number of home students according to the different proposed overseas student quotas, compared to actual figures for 1990/91.

[4] The actual increase to home student numbers compared to the "Todd" Target is 116.

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